The Influence of Representations on English Students' Perceptions of the Place of Antarctica

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BA, PGCE, MA, FRGS, MBPsS

Thesis submitted for the degree

of Doctor of Philosophy
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Declaration of Academic Integrity

I confirm that this thesis results entirely from my own work.

This thesis has not been submitted for a degree or diploma at any other university.

The work is submitted in accordance with the University of Cumbria's Ethical Guidance. I confirm that I have acted professionally and ethically throughout this research.

I believe that all sources that I have drawn upon have been fully acknowledged.

No publications have yet been made from this research.

Signature:

Date:

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I would like to thank David for his proof-reading, his love and patience throughout my studies.

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Abstract

This thesis is a cross disciplinary consideration of the philosophical, psychological and pedagogical debates on the construction of place. This place discourse is interwoven with an investigation of the historical and current social, cultural and scientific representations of the unique and significant place of Antarctica and school research. Through the paradigm of critical educational research it relates this place discourse to the pedagogy of place.

Classroom research, using an integrative mixed methods approach, was undertaken in an English, comprehensive, secondary school with mixed gender and ability 11-18 year old English students. This case study examines how representations influence English school students' place perceptions of the Antarctic continent.

Analysis of the classroom research with qualitative software identifies the key components and differences of the imaginations and the 'realities' of the students' perceptions of Antarctica. The research establishes what and how varied representations influence the students' place perceptions of this distant continent. It

explores how digital representations across the continuum of the concept of place, a film place matrix and dialogical discussion could be employed to challenge and change student perceptions of place through critical reflection.

The research brings the secondary students' voice to the discourse of place construction. The findings suggest the teaching of place needs to move beyond the socio constructive approach to a social realist understanding of place and to adopt a holistic pedagogical approach. The thesis highlights how students need to make conscious their unconscious perceptions of place and to critically engage with the place representations they encounter if they are to develop a deep sense of distant place.

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Introduction

The Research Background

This research arose from the researcher's extensive experience in geographical education at school, university and initial teacher education levels. This included the analysis of resources about particular places designed to meet the requirements of the English national curriculum from 1992 onwards and the observation of learning and teaching strategies on distant place. It was apparent to the researcher that despite shared formal teaching and learning experiences individual students held different perceptions of particular places.

In 2007, the researcher participated in a small expedition to Antarctica with members of the Royal Geographical Society and other tourists. Queries and comments made by adults and children about this continent revealed they held multiple, affective, different and sometimes erroneous conceptual understandings of the 'reality' of this place. This raised the question of how and why these different personal constructions of Antarctica developed.

Prior to this visit, the researcher read the book, *South with Scott* written for children by expedition member Vice-Admiral E.R.G.R. Evans (1919). This highlighted the fascinating temporal and cultural differences in twentieth century representations of the fauna, landscape and history of this distant continent compared to those found in current school texts, children's literature and media. This led the researcher to question how representations of place influence student perceptions.

These personal experiences had made Antarctica a significant place for the

researcher. Antarctica was selected to use as the case study to explore secondary student perceptions of place because it is a unique place without an indigenous population. It is a place of global geographical, economic and political significance. The United Nations 'Bruntland' report in an anthropocentric stance noted that

> The challenge is to ensure that Antarctica is managed in the interests of all humankind, in a manner that conserves its unique environment, preserves its value for scientific research and retains its character as a demilitarised, non–nuclear zone of peace. (World Commission on Environment and Development, 1987, p.279)

Antarctica is a place studied in the secondary school curriculum in the United Kingdom. The distance of this place from England means it is a place students are unlikely to ever visit and most will not have encountered anyone who has had direct experience of this place. As a result, it is an ideal place for a case study because their perceptions of this distant place can only be gained from the representations of others. Through increased accessibility and technological development, the Antarctic landscape, weather, habitats, and human environments are brought directly into the classroom for 'meaningful' teaching and learning of a distant place.

Synopsis and Research Questions

The thesis explores the chronological, cartographic, and remote sensing image representations of the discovery and exploration of the Antarctic continent and the influence of these on past and present perceptions of Antarctica. It considers the implications of this development of western locational understanding of this distant place for English school students today.

The research evaluates the dominant discourses on the psychology of place perception and the philosophies of place construction. It considers the precise meaning of the terms of place devised by western metaphysical thinkers and how this has led to multiple ways to conceptualise place.

This discourse is set into the context of the continent of Antarctica through an analysis of varied representations including the diaries of polar explorers, online digital archives, polar archives and contemporary materials such as documentaries and polar exhibitions. These representations are examined in relation to the multiple discourses of place presented by academic authors.

Through this analysis, the thesis considers the following questions:

1. What are the contested psychological and philosophical academic constructions of place?

2. How have these constructions of place influenced the aesthetic, cultural, natural, political and social place narratives and images of Antarctic ‘texts’ and the representations they contain?

3. Do representations of Antarctica diffused through space and time such as photographic images from British Antarctic explorations and the remote sensing images of the continent create ‘Myths?’ or ‘re-presentations of reality which

resonate across space and time' (Short J. R. 1996, p.62).

It explores these questions through a critical analysis of the pedagogy of place, a pilot study and a case study research project set in the English secondary school context. Employing an integrative, mixed method approach to research through the paradigm of critical educational research.[1] [2] It investigates the following questions with 41 mixed age, gender and ability students aged 11 to 18 in an English secondary comprehensive situated in a market town.

4. What are the key components of the imaginations and the 'realities' of the student perceptions[3] of the Antarctic continent?

5. To what extent are the dominant academic discourses on the construction of place evident in English students' concept maps of Antarctica?

6. What were the sources of these perceptions? To what extent were student perceptions and understanding of Antarctica gained from formal or informal representations of Antarctica and were are any of these diffused through time and space?

7. What was the impact of formal and informal 'texts' and the myriad representations of Antarctic they contain on the sample research students' geographical imaginations of Antarctica? Do these representations create student perceptions that do not reflect the 'reality' of the place of Antarctica?

8. Do technological innovations in the creation and presentation of representations influence the students' perceptions of Antarctica?

The data collected in the educational research project was analysed through open coding to evaluate the influence of artistic, media, literary and curriculum 'texts' on the shaping of student understanding and reasoning about the place Antarctica. The

1 See Cohen, (2007)

2 This methodology was adopted because of the overlapping inter disciplinary discourses of geography, politics, education and culture in place representation which combine in the school curriculum

3 Also referred to in the literature as geographical imaginations and mental maps

research establishes the different perceptual understanding these students held of Antarctica in relation to the previously established interwoven discourses of the place of Antarctica.

The study considers if and how reflections on challenging and emotional digital materials in the research sessions created cognitive dissonance through the questioning of previously held perceptions of the continent of Antarctica and if new perceptions are created.

The research brings secondary students' voice to this narrative of place. It develops a framework for coding and analysing perceptions of any place. The findings suggest the teaching of place needs to move beyond the socio constructive approach to place to a holistic social realist understanding of place through a pedagogical approach involving dialectic discussion and enquiry. The thesis reveals how students need to make conscious their unconscious perceptions of place and to critically evaluate the place representations they encounter if they are to develop a deep sense of the distant place of Antarctica.

Chapter 1:-The Discovery and Cartographic Construction of the Place of Antarctica

> *People of the present day, who are so well supplied with information about the most distant parts of the earth, and have all our modern means of communication at their command, find it difficult to understand the intrepid courage that is implied by the voyages of these men. They shaped their course toward the dark unknown, constantly exposed to being engulfed and destroyed by the vague, mysterious dangers that lay in wait for them somewhere in that dim vastness.* (Amundsen, 1912, chapter 1)

Introduction

Long before the first actual human landfall, Antarctica with no indigenous population began as a place in human minds, a socio-cultural construction of the Ancient Greek[4] and Islamic civilisations. This chapter considers the cultural and social impact of Antarctic cartographic production and the early exploration of the landscape on the creation and representation of the place of Antarctica. The maps of Antarctica are deconstructed and considered in relation to the discourse on place construction.

1.Place as Location

In Greek antiquity, philosophers including Plato believed space was a separate entity to place. They referred to this invisible space as kenon (the void or empty space), chaos (primordial space or infinite space) and cosmos (the order imposed on chaos). For the Greek scholars, visible place was described as topos (the physical features) and chora (both location and a space to be occupied) and a detailed

4 Up to the second century BCE

description of the place.[5]

However, for the ordinary population, ‘space and place largely coincided, since the spatial dimensions of social life were in most respects, dominated by “presence” by localised activities’ (Giddens, 1990, p.18). For the majority of people, unknown land was ‘seldom far from the hearth fire’ (Wright,1947, p.1) or as Wright eloquently stated their ‘known world was only a pool of light in the midst of a shadowy limitless, for all that was definitely understood and proven’ (ibid). Narratives of the time, such as Jason and the Argonauts and the Quest for the Golden Fleece, enhanced the idea that unknown places were exotic and mythical. Gradually, place was seen by all as bounded and space as the beyond out there.

1.1. The Beginning of the Cartographic Construction of Antarctica

The separation of place from space enabled the ancient Babylonian, Greek and Roman geographers to represent the world cartographically. The first accreditation of a Greek world map is that of Anaximander (died ca. 546 BCE). It is believed to have ethnocentrically[6] depicted the land known to the Greek civilisation. Hecataeus of Miletus (ca 611-545 BCE) improved upon this map by illustrating the known world of the Greeks as a flat disc surrounded by water or Oceania[7] (Wilson, 2006, p.339). These and later maps facilitated

> …the reduction of the room like place of choros to location. As location, it

5 Plato’s thoughts are recorded in Timaeus. See Casey, 2009, p.352)

6 Ethnocentric perception is ‘the tendency to see and judge external occurrences in terms of one’s particular ethnic or national expectations acquired as a member of a particular community. p.95 Klineberg, O. 1964 and cited in Goodey, B. 1971, Perception of the environment, p.48

7 There are references to this map and many reconstructions but an actual copy has not been found.

> remains a form of place, but it is a place that has been reduced to a spatial coordinate (Olwig, 2001, p.97).

In the sixth century BCE, the philosopher and mathematician, Pythagoras established that the earth was spherical in shape [8] and his compatriot Parmenides of Elea divided it into five parallel climate zones.[9] These ideas were further developed by the philosopher, Aristotle. (384—322 BCE) who also believed in the symmetry of nature.[10] In his work Meteorologica, he described his hypothesis that the northern Polar Regions, which the Greeks knew as the Arktos (after the northern stellar constellations the Great Bear, and Little Bear), must be counter balanced by another landmass at the opposite end of the sphere. There could not be a void:-the world must be in equilibrium. Since this was the Antipode or opposite the Greeks named this place, the Antiarktos [11] (Aristotle 350 BCE).

For western civilisations, an unknown, named place at the 'bottom' of their world, had entered their imaginations. Aristotle also created the lines of invisible latitude, including the southern Antarctic Circle[12] still used today. He divided the spherical

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8 Harley, J. B. and Woodward, D. (1987) *The Foundations of Theoretical Cartography in Archaic and Classical Greece* prepared from materials supplied by Germaine Aujac accessed at http://www.press.uchicago.edu/books/HOC/HOC_V1/HOC_VOLUME1_chapter8.pdf 11/03/2012

9 For more detail and references see *The Foundations of Theoretical Cartography in Archaic and Classical Greece prepared from materials supplied by Germaine Aujac* accessed 11/03/2012 at http://www.press.uchicago.edu/books/HOC/HOC_V1/HOC_VOLUME1_chapter8.pdf

10 Aristotle (350 BCE) translated 1922 by J. Stocks, *On The Heavens* p.60 accessed 11/03/2012 at http://www.ellopos.net/elpenor/greek-texts/ancient-greece/aristotle/heavens.asp?pg=60

11 'Now since there must be a region bearing the same relation to the southern pole as the place we live in bears to our pole, it will clearly correspond in the ordering of its winds as well as in other things. So just as we have a north wind here, they must have a corresponding wind from the Antarctic.' Aristotle, 350 BCE p.47 accessed 11/03/2012 at http://www.ellopos.net/elpenor/greek-texts/ancient-greece/aristotle/meteorology.asp?pg=47

12 'Our Arctic Circle varies according to the latitude of the place of observation. It is defined as the limit of the ever-visible stars for a particular latitude. By corollary, the Antarctic circle for any given latitude is the limit of never-visible stars' (Harley, and Woodward, 1987 based on material supplied by Aujac, G. p147). This was simplified from Aristotle 350, BCE translated by Webster accessed at 11/03/2012 at http://www.ellopos.net/elpenor/greek-texts/ancient-greece/aristotle/meteorology.asp?pg=46

earth into five climate zones distributed by latitude from an imaginary line of latitude, the Equator. These consisted of the Oikumene, the inhabitable zones of the world, located in two Temperate Zones and which included the known world of the Greek civilisation. The Torrid Zone near the Equator was considered to be uninhabitable due to the heat and two frigid zones uninhabitable due to the cold. Explorers would need to cross the torrid zone to reach the perceived landmass in the South that lay within the uninhabitable Frigid Zone (Aristotle 350 BCE pp.46/7).[13]

Some classical geographers including Eratosthenes believed that at the southern pole beyond the frigid land there could be a possible paradise. The Greeks believed that no one could live in the unknown beyond the Oikumene, that is the lands without civilisation. This encouraged a gradual northern rather than southern exploration of the globe by western navigators. [14]

Further influence on the minds of western cartographers and navigators derived from the treatise, Geographia Cosmographia, by the Greek, Alexandrian geographer and astronomer, Ptolemaeus (Ptolomey) (87-150 CE). This work of mathematical principles was divided into two sections. Book one provided latitudinal coordinates and a description of how to use these to plot maps.[15] There are no original copies of books two to five which may have contained the maps. Ptolemaeus's coordinates from book one include the outline of Terra Incognita (unknown land). This was a large contiguous landmass connecting Africa and India in the South (Lennart,

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13 Aristotle 350, *Meteorologica* BCE translated by Webster accessed at http://www.ellopos.net/elpenor/greek-texts/ancient-greece/aristotle/meteorology.asp? pp.46 & 47

14 Thule was the name given to the northernmost inhabited part of the Classical world. Haywood, M. ed. (2005) and Cosgrove, D. 2008 pp. 104-6

15 Leanne (2012) claimed this thirteenth century *Cosmosgraphia* was a forgery.

Berggren & Jones 2000). An imagined land in the southern hemisphere had appeared as a place on the western map of the world. The idea of a frigid southern continent continued to be perpetuated. It was discussed four hundred years later in 43 CE by the Roman geographer, Pomponius Mela, in his work de Chorographia. Anti-arktos became romanised to Antarctica.

1.2. The Mappae Mundi

The charting of the globe, as Giddens noted, 'led to the creation of universal maps in which perspective, played little part in the representation of geographical position and form' (1990, p.19). These theoretical ideas of the conceptual world of the Greeks and of a spherical earth were replaced in the western world from the fifth to the fifteenth century by the map paintings of the Christian church. As well as marking place location, these maps were illustrated with the 'believed' images of the origins of the world held by the mapmakers and the civilisations they inhabited.

These cultural products of the cartographer's geographical imagination gave rise to an impression of regions of uninhabited land awaiting 'discovery' by human eyes.[16] Medieval mappae mundi provided instruction about the Christian religion through a philosophical, pictorial representation of the earth rather than accurate cartographic details (Woodward. p.284). The landmasses of the North and the South were still portrayed in equilibrium but surrounded by an Ocean of slime containing fantastical monsters (Cosgrove, D. 2010, p.105).

[16] With the exception of the region of Antarctica, most of the places marked as Terra Incognita, were obviously known to the indigenous populations and some places to orient civilisations.

The Hereford Cathedral Mappae Mundae is based on the "TO" model of many medieval maps. This consists of a circle divided by a "T" figure into the three continents of Asia, Europe and Africa. On the southern right side are fourteen monsters including men with dogs heads. Ptolemy's *Geographia* remained known only to Arabic scholars (Beazley, 1897 p.426).

1.3.Terra Incognita

As on the Greek maps, later global maps such as the *Mappae Mundi* continued to use the words terra incognita to signify 'a land unknown to the mapmaker after he had consulted all available sources of information' (Wright, 1947, p.2). It was also described as Terrae Australis Nondum Cognita. (the southern land not yet known). This undiscovered land had become a cold, unliveable land of the imagination awaiting discovery. This belief that the Antiarktos/Antarctic regions are uninhabitable has persisted through to modern times despite the fact that human civilisations have developed in the Arctic. The term terra incognita became linked to the geographical imaginations of these unknown places. The production of fifteenth century maps encouraged nations and individuals to compete to explore the surface of the earth to find the mythical places and their economic potential.

1.4.Cartographical Diffusion

The medieval orthodoxy of the *Mappae Mundi* was challenged by the 'rediscovery' of the ideas of Pomponius Mela and Ptolemaeus. This began with the

circa 1407 translation of Ptolomey's *Geographia* by Jacobus Angeluson. The first printed edition of Ptolemy's *Geography* including maps was produced in Bologna in 1477 (Lennart Berggren & Jones, 2000). Further atlases produced from these coordinates by the medieval cartographers revealed how the ancient classical ideas were combined with the later discoveries of land. Figure 1.1 is an example of a map portraying the continued belief in a large yet undiscovered southern landmass stretching towards the Equator. The map, *The Theatre of the World,* illustrates how the western constructs and cartographic representations of the place of Antarctica began to alter with exploration.

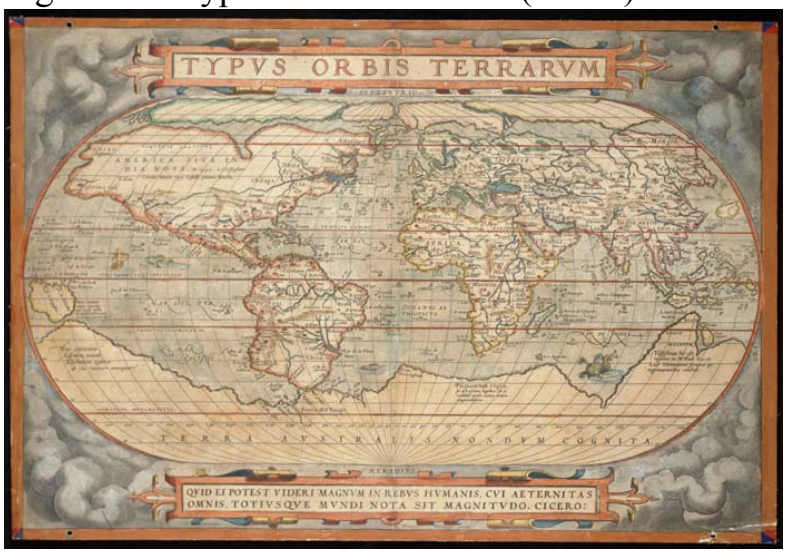
Figure 1.1:-The Oikumene or Known World:-Claudius Ptolemy. *Cosmographia*. Ulm: 1482 Hand-coloured woodcut print

Source:-Geography and Map Division, Library of Congress (116) http://www.loc.gov/exhibits/world/images/s116.jpg (copyright free)

Antarctica was gradually separating from the inhabited continents and drifting south. The map presents a Eurocentric image of the continent. It is centred on the Equator and distorted in shape and direction due to the projection of the sphere on a flat surface.

Cartography, religion, commerce and the exploration of the southern Terra Incognita had become connected. With technological change and the development of printing, these 'new' maps became available to politicians, traders and explorers. Consequently, the discussion of proposed voyages became easier and these printed maps could be used at sea. It was the duty and the art of the cosmographer, the geographer and chorographer to make visible to all the creation of God that they believed existed (Cosgrove 2010). A typical example is shown in figure 1.2.

Figure 1.2:-Typvs Orbis Terrarvm (1570?)



By Abraham Ortelius 1527-1598 and Franz Hogenberg d.1590?
Published 1570? copyright held at the University of Alabama Library accessed 03/02/201

The Portuguese navigators began to successfully explore the southern oceans in search of trade routes and the commercial opportunities that might be found along with the mythical southern landmass.[17] During the Renaissance period, the belief in a large southern landmass continued. Fernandez-Armestos suggested this was due to their philosophical thinking about global place.

[17] Bartholomew Diaz (1488) and Vasco da Gama (1497) sailed around Africa's Cape of Good Hope. Ferdinand Magellan in 1520 'discovered' a route to the Pacific Ocean, when he sailed through the later named Straits of Magellan at the tip of South America. Francis Drake in 1578 revealed that the archipelago of Tierra del Fuego was not linked to the conjectured southern landmass.(Fernandez-Armestos (2006)

> A world disproportionately awash with ocean-a world such as we really inhabit seemed to defy every principle of order of symmetry, such as rational minds expected from a divine creator. (2006, p.2)

Lines marking the southern Terrae Incognita appeared on maps despite the fact that the physical land lay undiscovered. The opposite often applies today when students are presented with global maps which are minus the continent of Antarctica.

The global map continued to change as the search for the Terra Incognita increased. With each discovery, the cartographic and mental image of the land of Terra Australis attached to the known world shrank. The pictorial, hemispherical, relief map in Figure 1.3 marked the Pacific Ocean.

Figure 1.3:-Americae Sive Novi Orbis Nova Descriptio 1570

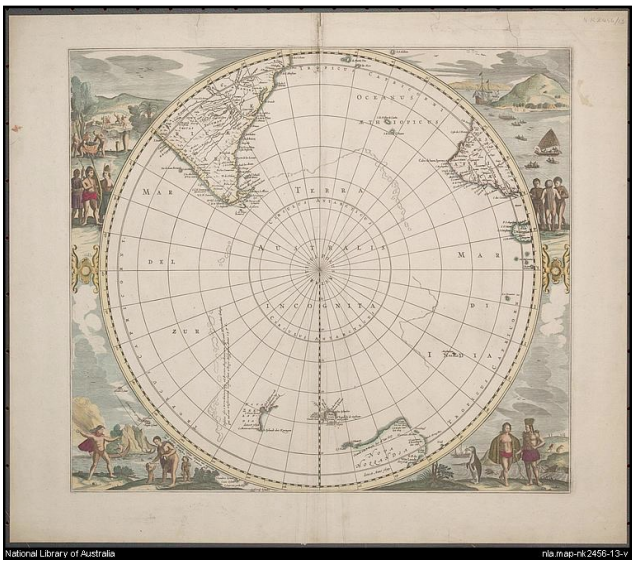
Source:-by Ortelius, Abraham, 1527-1598. Published Barking, England: Elsevier, 1964. The original copy belongs to the Library of the State University of Leyden Netherlands. It is reproduced from the first impression of the first edition of Theatrum Orbis Terrarum 1570, Aegidius Coppen Diesth It was obtained from the website of the map custodian at http://nla.gov.au/nla.map-nk10921. It is printed with educational use copyright. Accessed 20/01/2016

The cartouche on this map, as with others published in this era, hid the blank space and the continued lack of knowledge about the southern continent. The questions about Antarctica still remained. How big was it and was it a cold land of monsters or a

world of perfection?

The search for the continent and the South Pole continued to discover new sea routes and lands. In 1616, Willem Corneliszoon Schouten and Jacques Le Maire's expedition found a new route to the Pacific and the Spice Islands by sailing around Cape Horn of the continent of South America.[18] In 1642, Abel Tasman sailed to the south of New Holland, land now known as Australia. Piece by piece, based on the reports of sailors and navigators, the actual coastline of Antarctica began to appear on maps as shown by the pencil additions on the map in figure 14 below.

Figure 1.4:-Terra Australis Incognita 1666



Published 1666 by De Wit Amsterdam. From: Atlas contractus, sive Atlantis majoris compendium published by Janssonius, J. heirs, 1666. Scale of original map ca. 1:36,000,000, accessed 06/02/2013 printed with educational use acknowledgement to the custodian of the map http://nla.gov.au/nla.map-nk2456-13

The corners of this map are filled with scenes of islands, penguins and 'native' peoples. The inscription 'Nova Hollandia detect Anno 1644' refers to Tasman's

18 For details and maps of this voyage see http://libweb5.princeton.edu/visual_materials/maps/websites/pacific/maire-schouten/maire-schouten.html accessed 06/10/2015

second voyage. Australia/New Holland was now cartographically and mentally defined as an island separated from the still unknown southern continent.

1.5. The Resolution of the Search for the Southern Land

The size of Antarctica was still a matter for conjecture. In 1756, Charles de Brosses, President of the Burgundy parliament, published the *Histoire des Navigations Aux Terres Australe.* It summarised the narratives of voyages in the southern hemisphere undertaken by western Europeans. Despite the ever increasing evidence to the contrary, the idea of the equilibrium of the earth and the existence of a large Antarctic landmass persisted. Kippis commented 'many plausible philosophical arguments have been urged in its support, and many facts alleged in its favour' (1788, ch3). [19]

In a bid to resolve the question of whether Antarctica was a series of islands or a continent and to claim possession of any land and resources, James Cook was commissioned by the British Admiralty in 1769 to search for the southern continent. Unsuccessful, Cook embarked on a second voyage in 1772. On this expedition he tested a chronometer designed by John Harrison. This enabled the accurate fixing of longitude. On January the seventeenth, 1773, the Antarctic Circle was officially crossed for the first time. It was 'a memorable day in the annals of Antarctic exploration' (Amundsen, 1912, p.17). At 71°-10 S. because of heavy pack ice, Cook was forced to turn back in his quest for Antarctica for further exploration in the North. He recorded his thoughts in his journal for February 1775

[19] last accessed 19/01/2016 at http://ebooks.adelaide.edu.au/c/cook/james/c77n/)

> …an end has been put to the searching after a southern continent, which has, at times, engrossed the attention of some of the maritime powers, for near two centuries past, and been a favourite theory amongst the geographers of all ages. (Cook, 1775 p.643).

Cook left the debate of Antarctica's existence open and he encouraged others to continue to explore when he further commented

> …that there may be a continent, or large tract of land, near the Pole, I will not deny; on the contrary I am of opinion there is; and it is probable that we have seen a part of it. The excessive cold, the many islands and vast floats of ice, all tend to prove that there must be land to the South (ibid p.644).

His explorations led to a cultural shift in the representation and perception of the place of Antarctica. Cook's two voyages provided the foundations for the modern map of the southern hemisphere familiar to school children today. His charts provided accurate latitude and longitude aiding exploration. The desire to conduct scientific research to classify the regions flora and fauna and to look for commercial opportunities increased. Cook's 1768, instructions from the Admiralty requested

> …in case you find any mines, minerals or valuable stones you are to bring home specimens of each, as also such specimens of the trees, fruits and grains you may be able to collect (Cook, 1777, p.18).

The classification of nature by the detached observer can lead to exploitation. Cook's charts and published accounts of his voyages, particularly his notes on the abundant seal population led the way south to Antarctica for the sealers and whalers. The mapping of the Antarctic region had enabled the use of its natural resources for the cultured citizens of a distant western world. The Greek philosophers' belief in Antarctica was proved to be correct when the landmass was eventually sighted between 1819-21 by the Russian Captain Bellingshausen, British naval officers

William Smith and Edward Bransfield and the American sealer Nathaniel Palmer.

1.6. The Exploration of Antarctica

On the 7th February 1821, the first recorded landing on the actual continent of Antarctica was made by the American sealer, Captain John Davis. Commercial reasons meant that he did not disclose his find.[20] Mainly absent from the cartographic story of Antarctica, the whalers and sealers continued their southern explorations in their search for new hunting grounds. In 1823, the British whaler, James Weddell discovered the sea now named after him and reached as far south as 74°15'S.[21]

> The beginnings were small, but by degrees much was won. One stretch of the country after another was discovered and subjected to the power of man (Amundsen, 1912, p.15).

The naming of the continent linked it to the history, culture and nationality of the cartographer. Domination of this physical wilderness had begun. In the 1840s, three separate scientific expeditions set out to determine how large the continent of Antarctica was. They were French (d'Urville), American (Wilkes) and British (Sir James Clark Ross). Between 1840-43, Ross recorded the first major land features of the Antarctic continent. These included the Great Ice Barrier and the volcanoes Mount Erebus and Mount Terror, situated on Ross Island. His narrative of the expedition outlined the importance attached to the diligent collation of data about the place of Antarctica's physical features.

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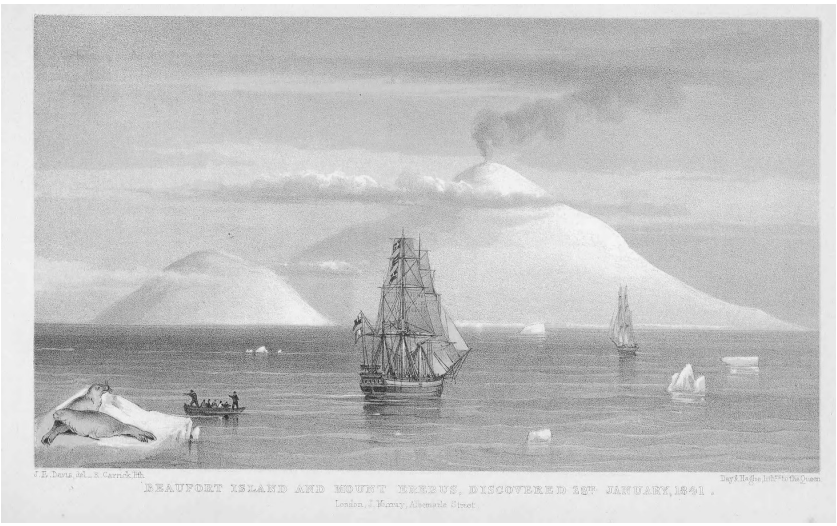
20 His footfall was only acknowledged when his actual logs were read in the 1950s Riffenburgh & RGS (2009)

21 Riffenburgh & RGS (2009)

> The discovery of an active volcano in so high a southern latitude cannot but be esteemed a circumstance of high geological importance and interest, and contribute to throw some further light on the construction of our globe (Ross, 1847, pp.216-17).

The naming and cartographical location of physical features shifted the nineteenth century perceptions of Antarctica as a place. It continued as a place of the imagination but this was now influenced by the images, texts and works of art produced to capture the physical 'reality' of Antarctica. Figure 1.5 shows how these representations were influenced by the cultural values of romanticism, the notion of the sublime and the domination of wilderness areas by humans.[22]

Figure 1.5:-Beaufort Island and Mount Erebus 1841



Source: Captain James Clark Ross (1847) *A voyage of discovery and research in the southern and Antarctic regions*, during the years 1839-43 /
from Collection: Darlington Library Texts at http://digital.library.pitt.edu/cache//3/1/7/31735054855006/0304.jp2.s.jpg accessed 17/03/2016 Printed with educational use permission

The limitations and expense of graphic reproduction meant paintings in published books were monochromatic images. Antarctica the place, was being revealed to the eyes of public and school children as a land without colour, a trend that continued until the late twentieth century.

22 These are discussed in sections 2.14.5 and 2.20

1.7. Mapping the Land

Despite the hardships and the time taken for the voyages, the question remained over whether Antarctica was a large landmass or a sequence of islands. In 1892 four Dundee steam whalers were encouraged by the Royal Geographical Society to make meteorological and scientific observations on their voyage to the Southern Ocean.[23] They returned with scientific information, cargoes of seal skin and oil. In 1894 H. J. Bull and Captain Leonard Kristensen on a Norwegian whaling expedition briefly landed men on the continent at Cape Adare on the northern tip of Victoria Land.[24]

The Sixth International Geographical Congress (held in London in 1895) passed a resolution which stated 'the exploration of the Antarctic regions is the greatest piece of geographical exploration still to be undertaken.' It urged that this scientific research work should begin before the close of the century.[25] In 1898 still seeking British government funding for an expedition, Sir Clements Markham, the president of the Royal Geographical Society emphasised, the need for Antarctic exploration for both nationalistic and scientific reasons.[26] Nationalism and human personalities had become part of the cultural construction of the place of Antarctica.

1.8. Scientific Exploration

The era of large scientific expedition now became part of the narratives of the cultural construction of Antarctica. The first of these was the Belgian Antarctic

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[23] Baughman, (1994), p.26-27 and Riffenburgh &RGS (2009)

[24] ibid

[25] Scott Keltie, and Mill (1896) p.176

[26] 'It is not only the loss of valuable knowledge in all branches of science that is at stake but the prestige and credit of our country.' Markam, C. (1898) Antarctic exploration: *A plea for a national expedition,* London: The Royal Geographical Society.

Expedition led by Commandant Adrien de Gerlache with an international crew. They went in search of the magnetic south pole (this was essential to improve navigation). In 1898, their ship the Belgica became trapped in pack ice off the Antarctic Peninsula. Its crew became the first humans to over winter in Antarctica for a period of two months from May 17 to July 23. Recording their experience in log books, valuable lessons were passed on to future explorers and scientists on how the physical place of Antarctica could become a lived space for humans.[27] [28]

In 1898, Carsten Borchgrevink led the first land based expedition. It was financed by the British publisher, George Newnes, who gave him ownership of the expedition's publication rights. It marked the beginning of journalistic influence on Antarctic representations. Publishing enabled some Antarctic explorers to exploit the sensational aspects of their travels and discoveries in return for fame, funds and 'a story that would live forever.'[29]

This expedition was followed in 1902, by William Spiers Bruce and the Scottish National Antarctic Expedition. Heidegger noted that only if we are capable of dwelling, can we build (Heidegger, 1962 p. 160). Bruce, by adding dwellings and science research stations to the map, forever changed the perceptions of the place of Antarctica.

In 1903, a French expedition led by Baptiste Charcot charted 600 miles of coastline and 1,250 miles on his second expedition in 1908. 28 volumes of scientific

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[27] Baughman, (1994) &Riffenburgh, (1993) p.149

[28] Lived space is discussed by Lefebvre, (1991) p.33)

[29] Kirkby, S. (1913) *Tis a story that shall live for ever* (Zonophone 78)

reports were produced. The German South Polar Expedition, led by Erch von Drygalski in the research ship the Gauss, discovered new southern territory. Between 1905 and 1931, he published twenty volumes and two atlases documenting the expedition.[30]

Antarctica as a place was becoming a physical reality for the public of the western world. A Swedish expedition with Captain Carl Larsen left five men and the leader, Otto Nordenskjöld, to overwinter and conduct research at Snow Hill Island by the Antarctic Peninsula. The sinking of their ship, the Antarctica, and the rescue of the crew in 1903 emphasised the dangers and the conditions explorers faced in the attempt to discover and map this new land.[31]

Between 1902-4, Robert Falcon Scott, a British naval officer, supported by the Royal Geographical Society and the Royal Society set out on the ship *Discovery* with a brief to explore and to conduct scientific research. Scott, Ernest Shackleton and Edward Wilson attempted to reach the South Pole and the Antarctic plateau was surveyed for the first time and they reached 82 degrees south. [32]

Shackleton returned on the Nimrod in 1907.[33] The modern age had arrived on the continent with the shipping of the first motor car. This was followed by the summiting of the first mountain (Erebus), the crossing of the Trans Antarctic Mountain Range and humans setting foot on the South Polar Plateau. They believed they had located

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30 Glasgow University Digital Library:-http://gdl.cdlr.strath.ac.uk/scotia/ accessed 29/01/2016 and in Riffenburgh & RGS (2009)

31 Scott Polar Research Institute, (2005) Gb15 Carl Anton Larsen

32 Scott, (1907)

33 He was funded by the Scottish industrialist William Beardmore (Shackleton,1909)

the then site of the magnetic South Pole. The actual voice of the explorers now entered the homes of the western public. They could be heard on Edison cylinders extolling the dangers of this place and their brave exploits.[34] A 1914 Australian expedition led by Douglas Mawson charted a further 2,000 miles of coastline. Mawson's expedition introduced radio transmission to the continent (Riffenburgh, 2008). Technology had begun to change forever the social reality of life in Antarctica and the perceptions of this place in the public minds.

Two expeditions put the South Pole of Antarctica firmly on the cartographic and the mental map of westerners including school children. In 1910 Captain Scott led the British Antarctic or Terra Nova expedition. The exploration mapped Victoria Land, the Western Mountain range and Cape Crozier. It conducted many science surveys and five men reached the South Pole but they died on their return to home base. The deaths of the latter in 1912 altered the British perceptions of Antarctica from Edwardian times to the present day. The research presented later in this thesis questions the impact if any, of this expedition on a sample of English school children's perceptions of Antarctica.

Finally, the geographical South Pole was reached through the newly discovered Axel Heiberg Glacier. This was achieved by members of the Norwegian 'Fram' expedition, led by Roald Amundsen. On 14 December 1911, human habitation and the first artificial structure arrived at the elusive but shifting south pole with the setting up of a tent:-Polheim. The Norwegians' modes of transport of dog sledge and skis and their adaptations of Inuit clothing demonstrated that the interior of the continent could

34 Shackleton, E. (1910) *My South Polar Expedition (*Edison cylinder)

be mapped and explored.

1.9. Visual Surveying

These early expeditions of discovery involved surveying. However, as well as theodolites, human eyes were part of the surveying process especially male British ones. Edgar Evans, on the Terra Nova expedition commenting on the phenomena of the dry valleys, described how

> …the more one sees of this place the more one is impressed with the rugged scenery, there are mountains all round with glaciers coming down the sides of them...Now I have the satisfaction of seeing the whole of it.[35]

British naval officers were required to learn accurate sketching to record information on coastlines and harbours. This inevitably brought with it 'the subjectivity of embodied observation' (Cosgrove, 2102, p.161). Their sketches especially those of Dr. Edward Wilson such as that shown in figure 1.6 tried to portray the landscape with accuracy in contrast to the earlier works of art influenced by the romantic movement. Colour had entered the images of Antarctica. Wilson, like the artists for Beaufort Island and Mount Erebus in figure 1.6, used male figures to emphasise the idea of tiny humans battling to dominate and conquer the vast, sublime landscape. The place of Antarctica is unique in the fact that the first journeys of exploration into the interior were accompanied by the invention and developments in visual, archive photography.

[35] Williams I, 2012 pp.131 citing the *South Wales Daily Post* 14/02/1913

Figure 1.6:-Mount Erebus from Hut Point March 1911

Artist Edward Adrian Wilson printed with educational permission of the Royal Geographical Society.

A comparison of the images in Figures 1.6 and 1.7 below shows that photography enabled a more accurate representation of Mount Erebus compared to sketches and paintings. However these freeze framed photographic representations once again involve the artist's eye.

William Spiers Bruce,[36] Paul Plenau[37]and members of the Discovery Expedition[38] were the first to photographically capture the scenic landscape. The now iconic official photographic and film images of Herbert Ponting[39]and Frank Hurley[40] have become part of many exhibitions representing the 'heroic' age of exploration from Edwardian times to the present day. The English cultural discourse about this

[36] See Scottish National Antarctic Expedition 1902-4. For further details and or images see http://gdl.cdlr.strath.ac.uk/scotia/index.html accessed at 17/03/2016

[37] The photographer on the French Antarctic Expedition, 1903-5

[38] See http://www.spri.cam.ac.uk/library/pictures/catalogue/bnae1901-04/ accessed 17/03/2016

[39] Herbert Ponting was the photographer and cinematographer for Scott's Terra Nova expedition 1910-13

[40] Frank Hurley on the Australian Antarctic Expedition (1911-1914) and Imperial trans-Antarctic expedition (1914-1918)

continent has been constructed on this foundation of popular literature. This began with lantern slides and cine films produced by the explorers on their return to finance their expeditions.

Figure 1.7:-Mount Erebus with Iceberg in Foreground, 20 January 1911

Source:-H. Ponting, printed with the educational permission of the Royal Geographical Society

Photography now 'enframed' this mysterious land of Antarctica but the limitations of their photographic equipment reduced the depth of perspective coupled with the difficulty of taking photographs in freezing temperatures and harsh climatic conditions. The black and white photographs lost the colours of this landscape and added a bleak feel to these representations. To overcome this, objects and living creatures especially posed humans usually pervaded the scenes.[41] [42]

For the returning 'heroic explorers', the RGS and the Royal Society provided venues to present their new knowledge of the continent. The societies assisted with

41 The term to Pont was probably devised by the scientist Griffith Taylor and later used by Scott in his journal to describe the demands 'to pose until nearly frozen in all sorts of uncomfortable positions.' for Ponting to achieve this `(Wilson, D. 2011, p.182)

42 See section 2.36 for further discussion of the 'hero shot'.

scientific publications. These societies and their academic network have continued to have a powerful influence on the representations of Antarctica through the selection of images, photographs and articles displayed in exhibitions, used for publication journals or digitally released.[43]

Antarctica as a place has become perpetually influenced by the aesthetic, ideological values, image framing and content placement of these early photographers. Products (e.g., the Arrol Johnston motor car,[44] Fry's cocoa and chocolate and Huntley and Palmer biscuits), men, dogs and ponies were posed within photographs to meet the demands of nationalism, commercial sponsorship and the creation of narrative stories and films for sale to the paying public, newspaper editors and publishers. Commercialism continues to permeate the visual images of Antarctica.

1.10. Technology and the Map of Antarctica

In 1904, using air balloon flights, Captain Scott and Ernest Shackleton introduced the technique of aerial photographs to assist with the surveying of the continent. These brought more accuracy to the cartographic and cognitive perspective of the landscape of Antarctica and helped to convey the vastness of the physical landscape.

Within the space of twenty years the cartographic outline of the southern continent

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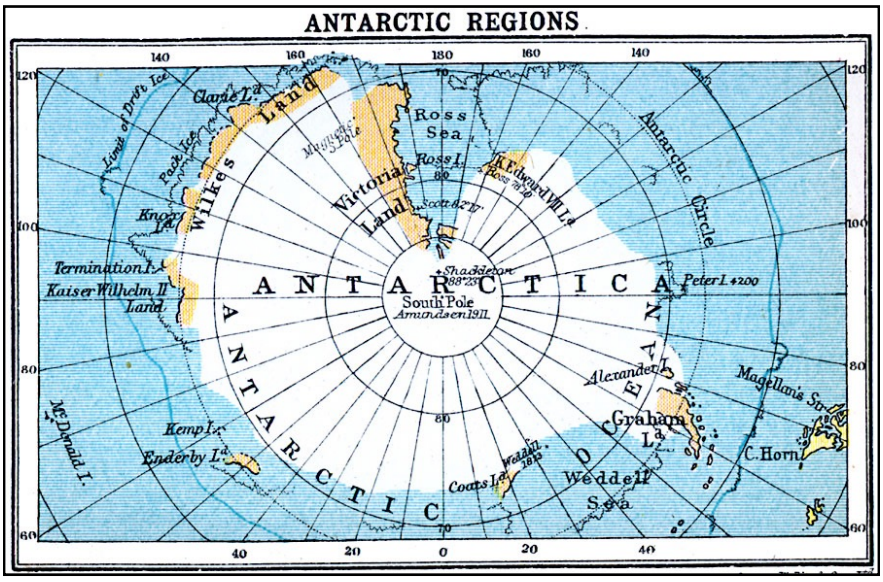
43 George Murray Levick's report *The Natural History of the Adélie* penguin on the breeding cycle of penguins at Cape Adare 1911-12 contained a section on the sexual behaviour of young male penguins deemed unsuitable for the Edwardian public. This section was only released to a selected group of scientists. It was finally published in the *Polar Record* in 2012

44 The motor car on the Nimrod expedition was produced at the Arrol Johnston motor car factory chaired by William Beardmore, Shackleton's patron (Shackleton, 1909)

had become readily accessible to western school children through their school atlases. The map of Antarctica in figure 1.8 was taken from a standard English school atlas of 1920. Most of the interior is still terra incognita and parts of the coastline are indistinct.

Figure 1.8:-Antarctic Regions, 1920



Source:-*Asprey's Atlas of the World,* (1920) Asprey and Co., Ltd.: London Printed courtesy of FCIT and the private collection of Roy Winkelman for educational use at http://fcit.usf.edu/

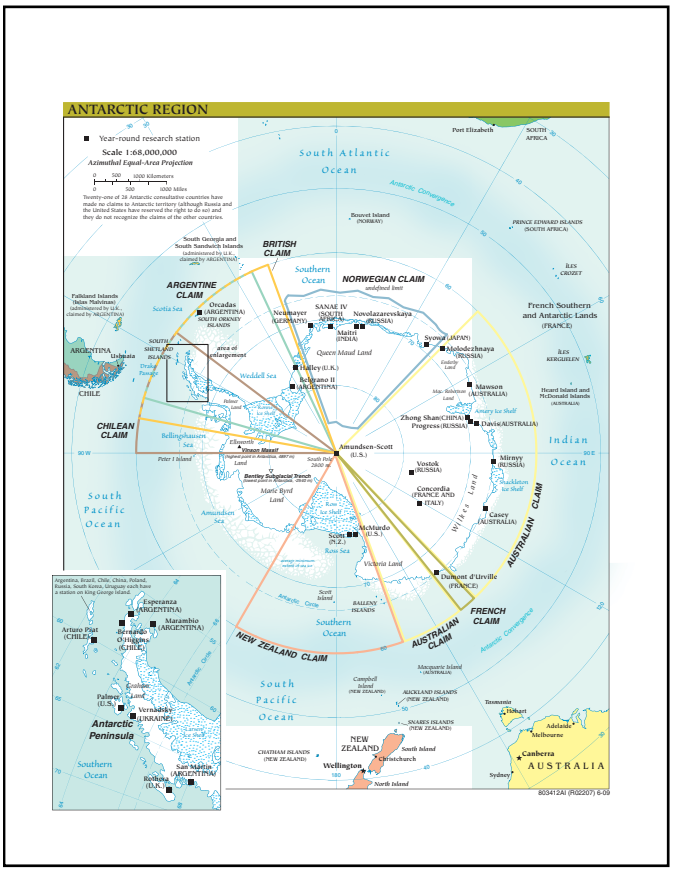
The development of flight led to the completion of the outline map of Antarctica. In 1928, Wilkins and Ellsworth were the first to fly around the Antarctic peninsula. This was followed in 1929 by the flight of four Americans including Richard E. Byrd over the South Pole. In 1935, Lincoln Ellsworth crossed the continent (Day, 2012).

The United States Navy Antarctic Developments Program or Operation High Jump undertaken from 1946-1947 employed 23 aeroplanes to take aerial photographs of Antarctica. This was followed by expedition Operation Windmill 1947-48.[45] These

[45] See http://researchguides.library.syr.edu/content.php?pid=29777&sid=681201accessed 27/01/2016

surveys charted most of the Antarctic coastline. The inland areas yet unexplored on foot are finally being revealed through satellite technology and research has continued to map and explore the surface of the land, lakes and icebergs for example the work by Dr. Bingham on the hidden Ferrigno Rift Valley below the ice.[46]

Figure 1.9:-The Antarctic Region:-Year Round Research Stations



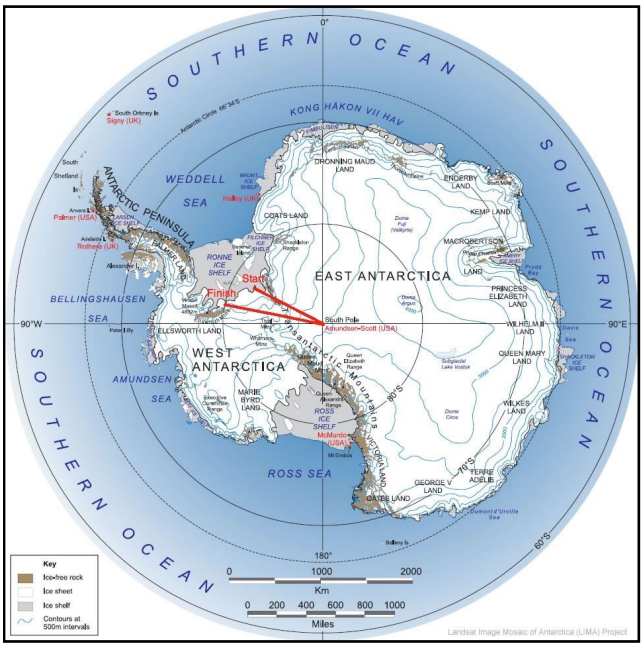
Source CIA, accessed 06/10/2015 at https://www.cia.gov/library/publications/the-world-factbook/docs/refmaps (copyright free for educational use)

The maps in figures 1.9 and figure 1.10 which are easily accessible online by teachers and students demonstrate how technological change has enabled human movement across the continent and provided the opportunity for the use of secure permanent and temporary residences. To assist the conduct of research, replacement bases have and

46 See http://www.abdn.ac.uk/news/4438/ accessed 27/01/2016

are being built such as the Halley VI base which became fully operational on 5 February 2013. With the introduction of civilians including the many support staff at scientific stations, writers and artists in residence schemes and adventure tourists and new technology including satellite images, western representations of the continent have continued to change. An ‘expensive’ example brought Antarctic conservation issues to the public imagination. This was the rescue of an Emperor penguin found on a New Zealand beach and its tracked release back in the Southern Ocean in August 2011.

Figure 1.10:-The Major Geographical Features of Antarctica Showing English and US Research Stations In Antarctica

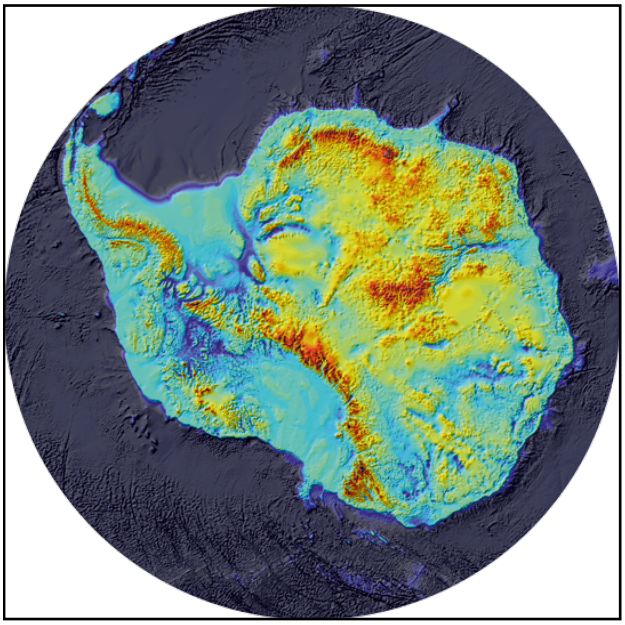


Source the British Antarctic Survey produced to accompany the Landsat Image Mosaic of Antarctica, or LIMA. (copyright BAS) at http://lima.usgs.gov/documents/LIMA_overview_map.pdf accessed 17/03/2016 LIMA_overview_map.pdf

A ubiquitous digital image is the opening screen of *Google Earth*. Here Antarctica has again disappeared from view. Satellites are used to bring direct communication with resident Antarctic researchers and adventurers directly into classrooms and live

cams[47] show research bases in real time. The surface of Antarctica has been identified but the desire to explore and map the continent has persisted. The actual continent beneath the ice was virtually exposed to human imaginations through the creation of a digital bed-map as shown in figure 1.11.

Figure 1.11:-Bedmap 2 (2013) Improved Ice Bed, Surface and Thickness Datasets for Antarctica.



Source: Cook &Vaughan (2010) The Cryosphere, 7, 375–393, 2013.http://www.the-cryosphere.net/7/375/2013/tc-7-375-2013.pdf CC Attribution 3.0 License.

This was released in 2010 and revised in 2013. It provides another opportunity to change perceptions of Antarctica as the depth and features of the land beneath the ice are revealed. This scientific bedmap has been used to create a virtual cube based landscape of Antarctica using the computer gamer software Minecraft. Its research scientist creator, Martin O'Leary, listed the misunderstandings the game could create in the players' minds including there is no wildlife and there is mining on the

[47] McMurdo station webs cams provided by the United States Antarctic programme http://www.usap.gov/videoclipsandmaps/mcmWebCam.cfm accessed 15/10/2015

continent.[48]

1.11.Conclusion

This section of the literature review has set the cartographical representations of Antarctica into the discourse on place. It traces how maps have changed the perceptions of this continent. The place of Antarctica has moved from an unknown land mass perceived only in imaginations to become a place occupied by humans and mapped from space. The chapter has briefly illustrated how the discovery, surveying and cartographic map production of the place of Antarctica were linked to sovereignty claims, economics and technological change. The discussion of the different cartographical productions has revealed how the representations of this place of wilderness have been influenced by the physical, social and cultural flows from distant worlds. It reveals how technical innovation has led to the creation of new maps of Antarctica easily available to teachers and school students. Tracing the cartographic history of Antarctica provides a foundation for reflections on how representations change perceptions of the continent for distant students. This is explored in the following chapter on the varied discourse of place set in the place of Antarctica and an educational research project on student perceptions of Antarctica discussed in chapter six.

48 http://www.martinoleary.com/minecraft/ accessed 16/03/2016

Chapter 2:-The Perception and Making of the Place of Antarctica

> *Place has history and meaning. Place incarnates the experiences and aspirations of a people. Place is not only a fact to be explained in the broader frame of place, but it is also a reality to be clarified and understood from the perspectives of the people who have given it meaning.*
> *Source:*-Yi Fu Tuan*, Space and Place.* 1977 p.387

Introduction

The debate on the precise nature of the everyday terms of place and space for more than two millennia by western metaphysical thinkers has led to multiple ways of conceptualising place and space. This chapter follows a reflective, chronological approach to explore the philosophical, psychological, sociological and geographical theories and debates about the western construction of place. In ancient, western civilisations place was considered to be a specific location. The evolution of place from this philosophy to the current ideas of Cresswell (2014), Casey (2009) and others has led to the thinking that place should be considered to be a fusion of the natural, social and the cultural in place, region and territory within space (Casey, 2009, p.xxxii-xxxiii). The chapter reflects on the constructions of place in relation to the unique place of Antarctica.

2.Place as a Cultural Construction

It was shown in the previous chapter how the attachment of names and locations to areas of the world through cartography meant they became meaningful to people. It created places before they were even lived in by humans ‘Space became accessed as a

series of blocks defined by state territorial boundaries.' (Agnew and Corbridge, 1995, p.79)[49] Space and place had become mingled.

2.1.Surveyed Place

In addition to the production of the maps of Antarctica discussed in chapter 1, the reports from expeditions of exploration and discovery meant that places became associated with a fixed knowledge of location and with the description of their physical components. These conceptualisations of space and place created territorial and political entities. This led to further voyages of exploration and charting of seas and coastlines.

Once on land, the explorers, military personnel and geographers conducted surveys and recorded the topographical characteristics of places. These 'were attempts to grasp, to invent, a vision of the whole; to tame confusion and complexity' (Massey, 2005, p.109). David Harvey noted how 'the change from a feudalist to capitalist society in Western Europe led to a revolution in the structures of geographic thought and practice' (1984, p.2). These new geographies 'typically mirrored the movement of commodities, the migrations of peoples, the paths of conquest, and the exigencies of administration of empire' (ibid).

The explorers carried their geographical ideas of place across the planet including to the place of Antarctica. These voyages of exploration and discovery were funded by commercial magnates. For example, Sir James Key Caird (1837-1916), a wealthy

[49] A tradition that continues today in the field of International Relations

Dundee jute manufacturer and philanthropist, gave £24,000 to support the Imperial Trans-Antarctic Expedition of 1914-1916, led by Ernest Shackleton.[50] In return for financial assistance, physical features of place such as Caird's Coast, the Beardmore Glacier[51] and Coat's Land in Antarctica were named after sponsors.[52]

By the mid nineteenth century, geographical and scientific societies [53] had become enthusiastic supporters of exploration intended to reveal the identity of places and to claim land for nation states. Expeditions supported by these societies were expected to adopt a cosmographical, scientific approach. Most of the scientists who set out to acquire this knowledge held a positivist view of nature. They aimed to investigate its 'individual parts or atoms and processes or mechanics' (Norgaard, 1994, p.59). Eurocentric geographers set out to map the landscape, as if 'seen from a balloon or hilltop to guide subsequent travellers through it' (Holt-Jensen, 2009, p.2). Their topographical surveying described the morphology of the land, defined the structure of regions and identified its environmental characteristics. Nature was observed, compared and classified into categories of unity and order. From a westernised perspective this included 'the conditions that placed limits upon human activity or at least they did so until they were transcended by technology' (Thompson, 2003, p.73). The settings of these scientifically investigated places were then put into narrative

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[50] http://www.spri.cam.ac.uk/archives/shackleton/articles/1537,2,30,22.html accessed 15 October 2011

[51] William Beardmore (1856-1936) was a Glasgow manufacturer engaged in engineering, arms production and shipbuilding works. He gave £7,000 to support the Nimrod expedition. of 1907-1909 accessed 15/10/2015 at http://www.jamescairdsociety.com/beardmore.php#intro

[52]James Coats, Jr., and Major Andrew Coats, Paisley thread-manufacturers who provided over £30,000 of the £36,405 raised to finance the Scottish National Antarctic Expedition led by William Spiers Bruce. http://geonames.usgs.gov/apex/f?p=gnispq:5:::NO::P5_ANTAR_ID:2916 accessed 23/09/2011

53 The Royal Geographical Society was founded in 1830 and by 1885 there were nearly one hundred geographical societies across the globe.(Holt-Jensen 1999 p.47) and http://www.rgs.org/AboutUs/History.htm accessed 28/01/2012

frames for public readership. Surveying turned the space of the southern Terra Incognita into the place of Antarctica and enabled the processes of discovery, commodity, exploitation and geomorphometry.[54]

2.2. Political Place

The demarcation of space by surveyors created territories. Within these borders, the cultural constructions of place over time conveyed a sense of the national events, and geopolitical and technological change over time. The emotion of patriotism became part of all places including Antarctica.

2.3. Place as Exhibition

The surveyors and cartographers believed they created neutral 'texts' but, as Mike Crang reminded us, the 'divide between consciousness and being has long been a feature of western thought' (2000, p.7). Martin Heidegger (1938/1977) described this modernist, European way of observing place as an outsider or spectator as Gestell or the enframing of the world. The consequence of this perspective was to 'set the world up as a picture' and then to 'arrange it before an audience as an object on display, to be viewed, investigated and experienced' (Mitchell, 1989, p.34). Timothy Mitchell and Derek Gregory (1994a) described this as seeing the 'world as exhibition.'

Nineteenth and twentieth century travellers collected objects from distant places and brought them back to the 'home' country. Images of landscapes, people and

[54] Geomorphometry; the measurement of the shape of the surface of the earth

places were captured through sketching, painting, photography and cine film. The 'pictures' produced 'enframed' the world in scientific texts, diaries and literature. Places were then displayed in lectures, museums, art galleries and cinemas. The mirrors held up by explorers and travellers to these 'discovered' places created images that were presented as reality to the consumers in a distant world. However, frequently these distant places were not seen from the perspective of the detached observer. John Wylie and others have drawn attention to the impact of the cultural gaze. Understanding distant place had become

> ...part of an increasingly standardised discursive repertoire through which non-European and far-flung places were made visible and understandable for the emerging European scientific establishment, imperial bureaucracies and broader metropolitan public (2007, p.128).

2.4.Fossilised Place

Historic representations often fossilise place. By freeze framing an image at a point in time, the dynamic changes of places that have occurred through time, physical and cultural changes become absent from future views. As a consequence, this manner of seeing the 'world as exhibition' enframed in the iconic early photographs of Antarctica has continued to influence cultural production of exhibitions and texts on the place of Antarctica today. This is rarely acknowledged by those involved in cultural production of the early representations of Antarctica. It means caution is required when these historic 'texts' are unlocked for consumption today, especially when they are aimed at students.

2.5. Exotic Place

Vidal de La Blache (1845-1918), a French geographer, typified the early modern stance of the 'world as exhibition' approach to place. In his studies of the different pays of France, the French peasants and their culture were visualised as part of the landscape. In some representations the people were even 'textually removed' from the landscape (Gregory, 1994a, p.30). If the cultural perspectives of local populations in a place were considered at all, it was often from the 'exotic' viewpoint. Gregory (1994a) discussed how when 'explorers' encountered the indigenous population they were set upon on the 'world as exhibition stage.' Such examples included the four Yamana Indians of Tierra del Fuego who were brought to England in 1830 by Robert Fitzroy, the Captain of the Beagle, and the images of indigenous populations such as those recording the economic, social and religious life of the Inuit in the Arctic region taken by The British Naval Expedition of 1821-3,[55] that were popular with the English Victorian public.

Flora and fauna were considered to be commodities and collected for food. Outlandish animals and plants, including whales and penguins from the Southern Ocean and the continent of Antarctica were collected as part of the scientific exploration of place to become exhibits for museums, specimens for research and for storage in collections.

[55] William Edward Parry, (1824) The illustrations are by Lyon, George Francis. Online images from this journal can be found at Ice a Victorian Romance: the Linda Hall Museum Library accessed 15/10/2015 at http://ice.lindahall.org/7_parry.shtml

2.6.Colonial and Imperialistic Place

Pierre Bourdieu, in his studies of Algeria in 1959-60, emphasised 'the role of the other' in the construction of imaginative geographies of culture. One of the most influential of writers on the perspectives of different places has been Edward Said. In his work *Orientalism,* Said recognised how a society sought 'to intensify its own sense of itself by dramatising the distance and difference between what is closer to it and what is far away' (1978, p.1-2). Said and others have described these imaginative geographies of Occidental societies as rational, historical and masculine. In contrast those in the Orient were seen as irrational, eternal and feminine (Crang and Thrift, (2000, p.314).

In a study of the influence of representations of the distant place of Antarctica, we need to consider the ideologies behind the mediated and ethnocentric observations and representations of the explorers. The occidental view towards distant place involved the politics and culture of colonial and imperialistic place,[56] discourse analysis and a general belief in the superiority of the European identity and European civilisation. Said observed that

> It seems likely that an Englishman in the later nineteenth century took an interest in England in which its colonial mastery, its relationship with other countries, was never far from his mind (Said, 1978, p.11).

Said's commentary on the Occident colonialist views has been criticised because it assumed a homogenous stance by the western world towards distant places and it

[56] Imperialism is 'the creation and maintenance of an unequal economic, cultural, and territorial relationship, usually between states and often in the form of an empire, based on domination and subordination.' (Johnston, et al ,(2000) p.375)

ignored pre-modern imperialism such as that of the Ancient Greeks and Romans.[57] Critics of Said's work also decry his failure to acknowledge the existence of non-western imperialism.

The uniqueness of the colonial continent of Antarctica is its lack of indigenes. Consequently, Collis and Stevens (2007) claimed that Antarctica as a place could not be defined through narratives of invasion, lost land and despoiled culture. This could mean Said's and other models of colonial spatiality are of limited use in relation to analysing representations of this continent. However, in Antarctica, as in other colonial places many

> Geographical practices were deeply affected by participation in the management of empire, colonial administration and the exploration of commercial opportunities. The exploitation of nature under capitalism evidently often went hand in hand with the exploitation of peoples (Harvey,1984, p.3).

Imperialistic images of Antarctica that emphasised control of territory and nationalistic pride and identity were used to educate schoolchildren. One such example is the book *South with Scott*. This was written in 1921, ' to keep alive the interest of English speaking people in the story of Scott and his little band of sailor adventurers, scientific explorers and companions' (Evans, 1921, preface). Nationalistic and imperialistic views and the perspective of the 'world as exhibition' may still colour the gaze and the picture in the current representations of the distant place of Antarctica accessed by students.

The writings of Said, Bourdieu and others remind us that as teachers and learners

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[57] See Robert Irwin, (2006), Martin Varisco (2007) and Rhys Jones and Richard Phillips, (2004)

we need to reflect upon the situated social activity and cultural stance of the narrator, artist or director when 'reading' or selecting for educational use popular, scientific 'texts' and works of art including television, film and magazines. In many texts on distant place, the occidental and oriental perspectives, although constrained, still exist and the emphasis upon difference and the exotic remains.[58] Past and current texts on Antarctica may be saturated with hidden meanings that influence schoolchildren's understanding. This can be determined by examination of the sources of English student perceptions of Antarctica.

The research case study will seek to establish if, when reading accounts of early and current explorers and viewing the use of historic and modern representations in exhibitions or films, students are encouraged to question the values the image makers held on the material aspects of place and to consider the subsequent impact of the explorers contact with the place.

2.7. Phenomenological or Embodied Place

Major rethinking about the Cartesian dualism of the nature of space, place and habitation began in the twentieth century, with the writings of the philosophers, Martin Heidegger and Maurice Merleau-Ponty.

Heidegger traced the influence of Ancient Greek and Roman philosophies on the

[58] The contents of magazines such as Geographical and the National Geographic Magazine, geographical reveal that the emphasis on different or 'exotic' cultures and settings continues today.

meanings assigned to place by Western observers. He claimed their ideas had resulted in reductionist theories of perception with humans looking out onto the world that had prevailed for two thousand years. He believed that their philosophy 'had unwittingly begun to pre-determine all things as if they were meant for our sole use or mastery,' leading to a productionist mode of thinking (Clark, 2002, p.39/40).

It was Heidegger who recovered the experience of being that lay concealed behind the dominant modes of Western thought (Wollan, 2003 p.38) (Ewing, 2003, p.298). In his work, *Being-in-Time* (1927), Heidegger questioned whether we are part of Nature or detached from Nature or, as Tim Ingold eloquently phrased it, are we 'beings within a world or beings without it ?' (2000, p.20). His thinking distinguished between three aspects of space. These were the world, as a container of space, regions or the space where we work and live and the concept of Dasein.[59] Dasein, his central concept is a colloquial German term for 'what we are' or 'being here' or 'being there' (Heidegger, 1927/1962).[60] It is a human person's physical existence in the world.

Heidegger saw all human explorers of place as Dasein. By their presence in a place, they were a 'being-in-the-world,' 'something that belongs

[59] It is 'this entity which each of us is himself and which includes inquiring as one of the possibilities of it's Being, we shall denote by the term Dasein' (Heidegger 1962, p. 27).

[60] Holt-Jensen renames these as the physical, the social and the subjective (2009, p.150) These are more familiar terms in the description of place today. Use of the term subjective perhaps loses the essence of Heidegger's original meaning and retains the dualist perspective on place.

essentially' (Heidegger, 1962, p.3).[61] He saw Dasein as lying at the centre of place, drawing together different threads of place. His ideas on the embodiment of the body presented the opposite view to seeing the 'world as exhibition' (Wollan, 2003, p.34). This is because, when the individual human is engaged in space and place, the observer's body is always 'situated in a place' (Casey, E 1993 p. xv). Dasein means that no one can be a detached observer of the world (Clark, 2002, p.18) especially in the extreme cold climate of the place of Antarctica.

If Heidegger's belief is correct, that we are part of the environment and not separate from it, 'one is what one does' (1962, p.89-90), then the manner in which we bodily experience a place in the world affects our perceptions and constructions of it. Dasein means that, when students are examining how explorers and scientists interpreted, engaged with and represented a place they need to consider their mode of movement through the landscape. If the explorer's body walked, skied, or rode on a dog sled or mechanical machine, this experience influenced their perception and understanding of it. Their bodies moving on land, sea and air have provided them with 'oriented and orienting placescapes' (Casey, 2009 p.29) or 'the essential nature of place' (Wollan, 2003, p.57), which then influenced the representations they produced.

Roland Huntford (1979/99), in his book about Scott and Amundsen *The last place on Earth*, contrasted the attitudes and experiences to movement through icy

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61 'What is meant by "Being-in"? Our proximal reaction is to round out this expression to "Being-in 'in the world'", and we are inclined to understand this Being-in as 'Being in something' ("Sein in."). This latter term designates the kind of Being which an entity has when it is 'in' another one, as the water is 'in' the glass, or the garment is 'in' the cupboard' (Heidegger, 1962, p.79).

'The compound expression 'Being-in-the-world' indicates in the very way we have coined it, that it stands for a unitary phenomenon' (Heidegger, 1962, p.78).

landscapes of the Norwegians in Amundsen's team with the English led by Scott and Shackleton. Subsequently, John Wylie (2002a & 2002b) and Kathryn Yusoff (2007 & 2005) have demonstrated how embodiment influenced these and other explorers' perceptions and representations of their journeys and Antarctica.

Heidegger recognised that human observers of place are essentially historical observers too. Students are 'born into an environment already formed by multiple layers of interpretation and tradition' (Clark, 2002, p.27). This place does not remain static. It is a dynamic and changing world, which has continuous over-layering of previous interpretations. In other words, Dasein is essentially 'that nexus of practices, assumptions, prejudices, habits and traditions that make up the everyday experiences and actions in which we find ourselves' (ibid. p.27).[62] The twentieth century postmodernists, such as Edward Casey, Edward Soja, Mike Crang and Tim Ingold in their discussions on the nature of place adopted Heidegger's objections to the anthropomorphism of Western thought.

Maurice Merleau-Ponty, in his *Phenomenology of Perception* (1945) also emphasised the role of the 'lived body' in the conscious subject of experience and therefore the formation of place. Rejecting the Cartesian idea of the separation of the mind and body he declared

> We perceive the world through our bodies; and the body is infused with consciousness. I have the world as an incomplete individual, through the agency of

[62] Heidegger was linked to the Nazi Party in 1930s Germany and his obtuse *Being-in-Time* became out of favour.

> my body as the potentiality of this world, and I have the positing of objects through that of my body, or conversely the positing of my body through that of objects (Smith, 2002, p.408).

Through the lived body, students and adult human beings constantly gain new experiences, which subsequently change our interactions with place. Both our sentient and our imaginative selves are not fixed.

2.8. Social Science and Place

These phenomenological views on the intertwinement of perception and the sentient body initially made little impact on social scientists including the eminent geographers, Carl Sauer (1889-1975) and John Kirkland Wright (1891-1969).[63] Their works were mainly concerned with the description of place within regions. This was reflected in the teaching of place in the school curriculum at the time with an emphasis on surface landforms, features and function e.g. R. M. Lockley, 1964/1976 *Britain in Colour*. By the mid twentieth century, it was increasingly recognised that people held views of the world that were based on subjective images. One of the most influential voices was that of William Kirk. He believed in the integration of mind and nature. In contrast to Maurice Merleau-Ponty, he claimed there were two components of the geographical environment, the phenomenal [64] and the behavioural. The facts of the phenomenal could

> Enter the behavioural environment of man, but only in so far as they are perceived by human beings with motives, preferences, modes of thinking and traditions drawn from their social, cultural context. The same empirical data

[63] See chapter 1 Peter Jackson, 1994, *Maps of Meaning* for a discussion of Carl Sauer's work and Sauer, C., 1962, *Land and Life a Selection from the Writings of Carl Otwin Sauer* edited by John Leighly, Berkley, London, Los Angeles University of California Press

[64] Phenomenal is natural and environmental phenomena altered or created by people.

> may arrange itself into different patterns and have different meanings to people of different cultures, or at different stages in the particular history of a culture (Kirk, 1963, p.366).

2.9.Quantitative Place

The Cartesian dualist ideas on the construction of place continued and were enhanced by some of the spatial social scientists, who adopted the spatial quantitative approach of geographers, such as Richard Chorley and Richard Haggett in the 1960s. Many adopted a positivistic view towards space and the objects within it. Data about objects and practices within place were measured, collated and analysed. Human beings were seen as rational actors whose practices affected the places within space. The impact of this scientific approach to place can be seen from its persistence within the English National Curriculum and examination syllabuses today.[65]

2.10.Experiential Place

In the 1960s and 1970s, humanist geographers including Edward Relph and Yi-Fu Tuan rejected these descriptive, spatial modes of thinking on place. They sought to understand the subjective dimensions of human life. This included the human interpretations of the physical world, human behaviour in the world and human relationship with the world. They believed that

> we are all cartographers in our daily lives and that we use our bodies as the surveyor uses his instruments to register a sensory input from multiple points of observation which is then processed by our intelligence into an image that we carry around with us rather like maps in our heads wherever we go (Ingold, 2000,p.182).

The humanists tried to understand what ‘being-in-the-world’ is truly like. They

[65] See section 3.15

believed place to be perceived through the senses but it was also constructed by the mind. Consequently, as Tuan discussed the perception of place would vary between each individual and each cultural group (1977, p.200–201).

2.11.Behaviouralism and Place

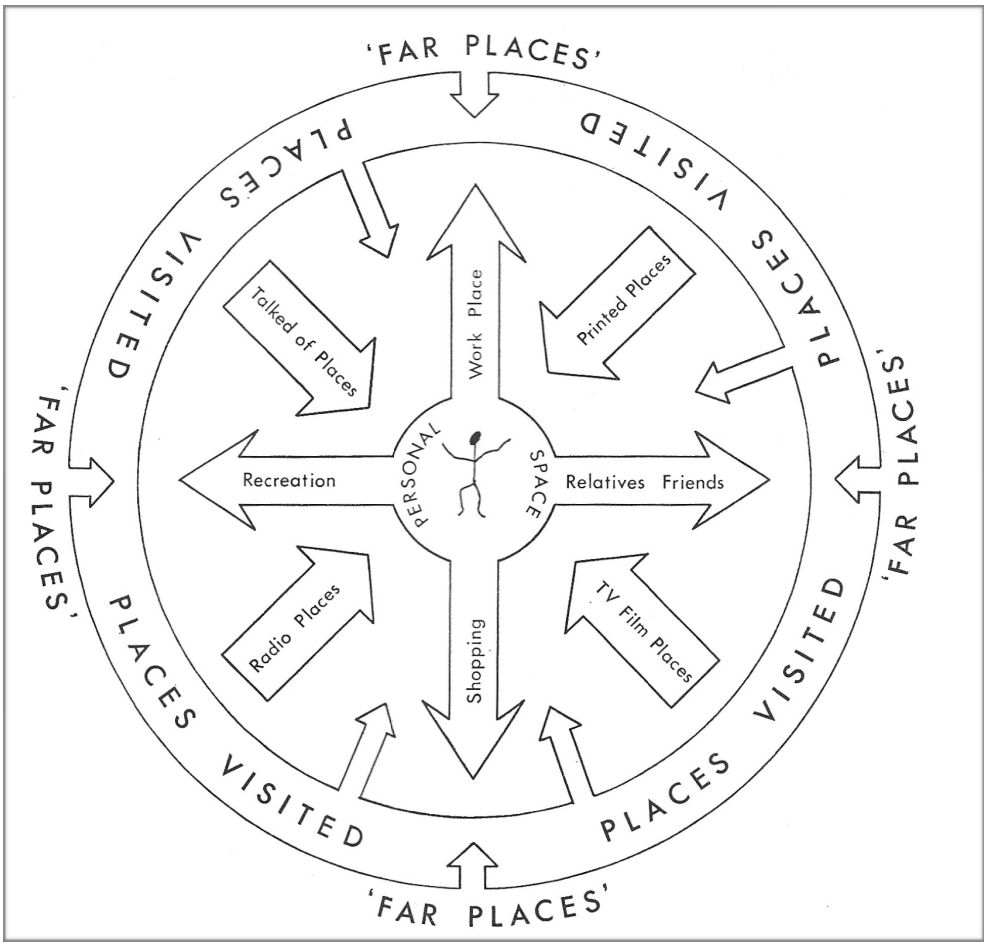
Some humanists known as the *Behaviourists,* including Douglas Pocock, Hugh Matthews and Kenneth Lynch, researched the field of environmental perception or the subjective images or mental maps of place held by adults and children. Adopting a scientific and statistical approach, they tried to determine how we gain an understanding of place, that is 'the difference between the attributes of 'here' and 'there' and the 'differences between places that generate movement of goods, people and information, between locations.' (Gould, & White, 1986, p.1) They also set out to identify how individuals and communities codified, reacted to, and recreated their environments (Boal & Livingstone, 1989, p.9).

Critics of the behavioural approach to place, such as Bunting and Guelke (1979) claimed the studies of the behaviourists were more about place preference than how students and others construct the place image. Harold Brookfield recognised that the preconceptions of the researcher could intrude on the mental map constructed from the data and that the mental map is selective and time dependent (1989, p.315).

Figure 2.1 presents a model of how the behaviourist Goodey believed a school student developed an understanding of place. 'The individual is shown at 'the centre of his (sic) micro area, in his (sic) personal space as a perceiver and receiver of information from the environment.' This personal space includes places they may

visit. Media representations bring into this individual space the experience of other and distant places (Goodey, 1971, p.7).

Figure 2.1:-The Child in Information Space



Source; Goodey, B., 1971 *Perception of the Environment*, University of Birmingham, Centre for Urban and Regional Studies Occasional Paper no 17 p.7. Fair use copyright permission

This humanist approach formed the basis for the teaching of place in the first National Curriculum of England in the 1990's[66].This restricted model does not consider the dimensions of time and cultural discourse but it is still recommended in literature aimed at student teachers.[67]

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[66] See chapter 3

[67]Conway, and Pointon, (2003) *If the World Is Round, How Come the Piece I'm Standing on Is Flat*? in *Teaching and Learning in the Early Years*, (ed). David Whitebread, 2nd edn., London: Routledge Falmer,

2.12.Place, Self and the Cultural Construction of Place

> *Place incarnates the experiences and aspirations of a people. Place is not only a fact to be explained in the broader frame of space, but it is also a reality to be clarified and understood from the perspectives of the people who have given it meaning.*
> Source:−Yi Fu Tuan (1979) *Space and Place the Perspective of Experience,* p. 387

2.13.Place as Psychological Construct

Relph, Tuan, Buttimer and others sought to ascertain the individual's human interpretations of the physical world through a hermeneutic approach. Space was regarded as 'amorphous and intangible.' It could not be directly described and analysed (Relph, 1976, p.8). The place within this space was now considered a 'multi-sensory psychological or experiential construct' (Tuan, 1974, p.5). Images and understanding of place were thought of as continuous creations of the human mind rather than pictures simply recalled from memory.[68] It was an anthropocentric view of the world. For example, Yi Fu Tuan pointed out 'these elaborated mental maps of unseen places are conceivable only in human beings' (1975, p.211).

Drawing upon the ideas of Merleau-Ponty and Heidegger, humanist geographers aligned themselves with the idealists and the social constructivist psychologists against the Cartesian divide of space and place. [69] Edward Relph clearly expressed this thinking with his statement

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[68] They depend on the ability to create images rather than on the ability to recall them. It can be distinguished from memory image but memory image plays a role in all imaginative constructions' (Tuan, 1975, p.211).

[69] Social constructionist: the object or objects that have meaning for human beings are created or controlled by social or cultural factors rather than natural factors. These categories of meaning can change over time and space.

> The existence of a material substratum of reality can be posited only through a leap of faith. It is a leap I am unable to make. The only reality I know is the one I perceive and think about on the basis of my perceptions. It is composed of things and events seen and experienced in all their multicoloured obtuse particularity (1989, p. 282).

Edith Cobb in 1977 pronounced that she did not see a gap between material reality and the body but a 'continuum of mind, culture and nature.' She believed there was give and take between the inner and outer world which she defined as 'the ecology of imagination.' Cobb claimed that since place and self are closely related realms of meaning, place must be an active agent in the forming of ourselves.

2.14.Emotional Place

Yi Fu Tuan expanded these ideas of the continuum place in his seminal book of 1977, *Space and Place.* He described how people lived in both a world of mathematical spaces, public symbols and a world of meaning. Through lived experience, the unconscious concept of place is created and maintained at different levels of scale. Ronald Davidson noted 'the instant a subject reacts emotionally to an area, a place-however thin and ephemeral-is born' (2008, p.166). These meanings of place are enhanced by the 'emotional or affective bond between people and place or settings, diffuse as a concept, vivid and concrete as personal experience' (1974, p. 2). Tuan[70] and Relph [71] described these as 'fields of care.' These fields of care arise from people's attachment to place and vary with the individual and time.

[70] Tuan, (1979), p.416

[71] Relph, (2009/1976), p.38

The affection in which places are regarded can be a positive emotion. Tuan described this as topophilia 'the human love of place.'

> It can include the roots of belonging and attachment people feel for a place especially if it is their home, their spiritual, emotive reactions and their ideological attitude towards a place. This response to the environment of place can be aesthetic, visual or tactile (1974, p.92).[72]

At the other end of the scale is the negative relationship between people and place known as topophobia. Yi Fu Tuan, labelled this feeling of repulsion by a place a 'landscape of fear.'.It referred to both psychological states and tangible environments. (1979, p.6). Aua Iglulik described the fear felt by the indigenous populations who resided in northern polar places.

> …We fear the weather spirit of earth, which we must fight against to wrest our food from land and sea.
> We fear Sila [the weather].
> We fear death and hunger in the cold snow huts.
> We fear Takfinakapsfiluk, the great woman down at the bottom of the sea that rules over all the beasts of the sea.
> (Source:-Rasmussen, 1929, p.167)

These 'thick accumulations of emotion can, like snowdrifts, be suffocating'. (Davidson 2008, p.166) The diaries, books, blogs and letters of Antarctic explorers, scientist, and artists reveal their fears and the ambivalent affective bonds held towards this region that caused them to return. The blizzards snow and ice are often anthropomorphised and seen as working against the temporary visitor to the landscape.

In the past, as Apsley Cherry Garrard's book, *The Worst Journey in the World*

[72] Critics of Tuan include Malpas who stated:-'There is a certain equivocation in Tuan's work, common in much writing on place, between place or space as that which gives rise to experience, on the one hand, and space or place as experiential construct, on the other.' (1999, p.30)

(1922) revealed the polar traveller had much to fear. This included the harsh climate,[73] physical danger, the distance to medical help and further food supplies, the need to transport food supplies from outside the continent and the ship becoming ice bound or even destroyed by the ice and the sea. Today the extreme climate and isolation remain, but there has been a great reduction in travel times to reach the continent. Other mitigating factors such as the understanding of nutrition, air and motorised transport across the ice, advanced facilities at base camps and the outdoor technological clothing and equipment of explorers have reduced the element of risk and fear of the icy landscape. However, dangers still persist for instance the Twin Otter aeroplane crash in 2013 with the loss of three Canadian crew and the accidents that caused the deaths of members of the British Antarctic Survey between 1948 and 2003.[74]

The explorer's greatest fear of the polar environment was and still is that of disease and injury. There are graphic journal accounts of the effect of cold and illness on the bodies of the Antarctic explorers. Roland Huntford (1999), Kathryn Yusoff (2007& 2005), John Wylie (2002a & 2002b) and others have discussed experiences of the effect of ice on the mind as well as the body. There remains in polar landscapes the potential for mental ill health caused by the winter months of darkness, restricted social contacts and the sense of isolation.[75] The strong emotions or fields of care of the artists and narrators towards polar landscapes may influence their representations,

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[73] The lowest official recorded temperature for Antarctica was on July 21, 1983 at −89.6°C at Vostok station, 1,300 km from the coast, at an elevation of 3,488m (Turner et al 2009).

[74] http://www.antarctica.ac.uk/basclub/news/deaths.php accessed 10/10/2013

[75] During De Gerlache's 1898/99 expedition aboard the Belgica, the first ship to winter in the Antarctic, the ensuing stresses led to widespread psychological disturbance amongst the crew. 'Mentally, the outlook was that of a madhouse' wrote the ship's doctor (cited in Huntford, 1999 p.53).

which in turn may affect the perceptions gained from these of the place of Antarctica by school students.

2.15.A Sense of Place

Relph classified the manner in which an individual self identifies with place into the categories of a 'sense of place,' 'spirit of place' or 'genius of place' (genius loci).[76] He used the term sense of place to refer to the subjective feelings associated with a place attributed by both insiders and outsiders. (1976, p. 48) He created the notion of 'insideness' and constructed a continuum to categorise the strength of the individual's sense of place (1976, p.50). This is shown in Table 2.1.

Table 2.1:-Relph's Seven Degrees of the Sense of Place Continuum

Existential outsideness	A self conscious and reflective uninvolvement, an alienation from people, homelessness, a sense of the unreality of the world and of not belonging (p.51)
Objective outsideness	The deliberate adoption of a dispassionate attitude towards places in order to consider them selectively in terms of their locations or as spaces where objects and activities are located. It involves a deep separation of person and place (p.51)
Incidental outsideness	A largely unselfconscious attitude in which places are experienced as little more than the background or setting for activities and are quite incidental to those activities. It applies to places where we are visitors (p.52)
Vicarious insideness	The experience of place in a second hand or vicarious way without actually visiting. It is an experience of deeply felt involvement. It may be through art, literature, poetry images or films. It is most pronounced when the depiction of a specific place corresponds with our experiences of familiar places because we know what it is like to be there. (p.53)
Behavioural insideness	This consists of being in a place and seeing it as a set of objects, views and activities arranged in certain ways and having certain observable qualities. It involves deliberately attending to the appearance of that place. (p.53)
Empathetic insideness	It is a fading from the concern with the qualities of appearance to the emotional and empathetic involvement in a place. It involves some deliberate effort to perceive and appreciate the essential elements of the place identity. (p.54 -55)
Existential insideness	This characterises belonging to a place. Most people experience the insideness of place when they are at home and in their own town or region, when they know the place and its people and are known and accepted there. (p.55)

Source: Edward Relph, (2008/1976), Place & Placelessness Pion Ltd

[76] Genius loci is 'an ancient and persistent idea. The Romans believed that places, like people, had inner spirits that determined their essences. Just as they thought it was possible to read a person's character or spirit from observing the particularities of his or her face, so the genius of a place could be divined by paying attention to its individual features' (Thomson 2003 p.67).

Relph claimed ‘to be inside a place is to belong to it and to identify with it, and the more profoundly inside you are the stronger is your identity with this place’ (1976 p. 49) He thought that this deep experience of the insider was constructed through the senses (including proprioception) within the place itself. This process of gaining empathetic insideness was exemplified by the words John Muir recorded in his journal:-

> In climbing, where the danger is great, all attention has to be given the ground step by step, leaving nothing for beauty by the way. But this care, so keenly and narrowly concentrated, is not without advantages. One is thoroughly aroused. Compared with the alertness of the senses on such occasions, one may be said to sleep all the rest of the year. (John Muir 1938 edited by Linnie Marsh Wolfe p.296)

Relph believed that the length of residence or the intensity of experience also influenced the strength of attachment or ‘fields of care’ people hold for a place. In *Landscapes of Fear*, Yi-Fu Tuan, drawing on his experiences of English and American landscapes especially the Californian desert, concluded that landscape is ‘a construct of the mind as well as a physical and measurable entity’ (1979, p.6). Many of the narratives and images produced and subsequently experienced by schoolchildren about Antarctica convey the creator’s strong sense of personal identity with this wilderness. This is demonstrated by the poem *L’Envoi* written by Nemo / Ernest Shackleton. He communicated his emotions of both topophilia and topophobia to create geographical imaginings for the reader.

> …Again in dreams we go back to our fight with the icy floe
> We shall dream of the ever increasing gales,
> the birds in their Northward flight;
> The magic of twilight colours,
> the gloom of the long, long night
> And when, in the fading firelight, we turn these pages o’er,

We shall think of the times we wrote therein by that far off Southern shore.
With regret we shall close the story, yet ever in thought go back,
Though the grip of the frost may be cruel, and relentless its icy hold,
Yet it knit our hearts together in that darkness stern and cold.
Source: *South Polar Times*, August 1903

Relph's belief that it was possible to experience place as a 'vicarious insider' is important in the understanding of perceptions of the distant place of Antarctica. Without actually visiting the place, how does the experience become one of deeply felt involvement? This may happen indirectly when, as consumers of outstanding representations and artistic creations of this and other distant places, we are able to enter into this mediated domain of place. Our identity with places also becomes embedded in everyday objects. Some of the elements of the place of Antarctica (especially penguins) have, through childhood stories, cards and media become part of our everyday environment. The effect of this familiarity with objects from a distant place and how to deepen students' sense of place is examined in the case study in chapter 6.

In contrast, at other times we remain indifferent to and outside the narrative of the written, artistic or media representations of place. It is also possible to journey to a distant place and access it through the senses, but choose to remain outside it (Relph's objective outsider). We may experience it from 'an insulated air conditioned tourist bubble' (Edensor and Holloway, 2008) or we may employ a detached tourist gaze, considering a place as something to be ticked off a list and photographed, a place to be consumed (Urry,1995).

The term 'sense of place,' unlike topophilia is constantly used in academic writings on place and the public domain. Holt-Jensen (2009) and Cross (2001) noted that sense

of place has been assigned several meanings that are related to the features of the phenomenal setting. These include the morphology that gives place distinctiveness, the cultural beliefs and practices associated with a place and lastly the social relations in a place. In particular, sense of place has referred to the sensual, aesthetic and emotional dimensions assigned to places by individuals, including love of a place and awareness of past personal and collective emotions towards a place.[77]

The humanists changed the understanding of what constituted a place. John Agnew succinctly defined this in *Politics and Place* in 1987. He stated that places consisted of a specific location, a locale and a sense of place. The humanists had demonstrated 'that different social groups:-children, the aged, social classes, whole cultures, possess distinctive and often incomparable forms of geographical knowledge, depending upon their experience, position, and traditions' (Harvey, 1984, p.6).

Later critics, especially Stephen Pile and Gillian Rose, accused the humanists of possessing essentialist conceptions of place. The major criticism was that many humanists assumed that reaction to places was a universal experience. The humanists had failed to recognise that the different social attributes of people, such as, race, age, sexuality and nationality, might influence their attitudes to a place (Rose, 1996).

The feelings revealed by different social groups towards a place, whether affectionate, deep, fearful, or indifferent are linked to the cultural background of individuals and nations. If we take into account the individual's interpretative frameworks of place, the ideas of the humanists still have an important part to play in

[77] Sense of place ' the more nebulous feelings associated with place; the feelings and emotions a place evokes' (Cresswell, 2009, p.1)

the identification of distant place making. The impact of the experiential approach to place is demonstrated by Tim Cresswell's frequently cited definition, 'Places are in the broadest sense, locations imbued with meaning that are the sites of everyday practice' (2009, p.9).

2.16. Dispositions/Habitus and Place

The focus in the discourse of place turned to the causal influences in the meaning of place for human beings. The social constructionist writings of French sociologist, Pierre Bourdieu created a bridge between 'reality,' objective social structures and the subjective individual experience of place.[78] [79] Bourdieu, like Edward Relph and Yi-Fu Tuan held that the subjective, unconscious interpretative framework held by the observer influenced their view of the world and therefore their perceptions of place. He described this as habitus, that is[80]

> a system of dispositions, that is of permanent manners of being, seeing, acting and thinking, or a system of long-lasting (rather than permanent) schemes or schemata structures of perception, conception and action.[81] (Bourdieu, 2005, p. 43)

Habitus, as Elder-Vass stated, encourages us 'to behave in ways that reproduce the existing practices and hence the existing structure of society' (2007 p.327). There are

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[78] Hubbard, Kitchen, & Valentine, (2004 p.59)

[79] Painter, (2000) in Crang and Thrift

[80] Bourdieu also described habitus as 'the cognitive structures which social agents implement in their practical knowledge of the social world are internalized, 'embodied' social structures converted into a disposition that generates meaningful practices and mean giving perceptions.' (Bourdieu, 1984, p.468)

[81] 'The word disposition is important being more familiar, less exotic, than habitus to give a more concrete intuition of what habitus is' (Bourdieu, P. 2000/5 p.43).

critics of Bourdieu's original theory such as King (2000), Crossley (2001), Elder-Vass, (ibid), and Bourdieu (1984, p.471) himself in his later writings. They have argued that habitus can be changed because humans are 'reflexive beings' (Elder-Vass, 2007, p.345) and the tensions which arise out of the cultural situations that individuals find themselves in may lead to habitus modification. Additionally, since the self or being-in-the world is not fixed, habitus is not bounded or static.

The adaptation of an individual's habitus occurs through social conditioning, education and experience in society. Through their conceptualised experiences of places and their own habitus, all individuals, including school students, gain a sense of their own place and of others place in the world. This highlights the power of education, social cultural experiences of place and active experience of place in modifying individual student habitus. This means the significance of particular places will vary for individuals and societies over time.

2.17.Social Capital and Place

Dewey recognised that education provided 'the keys which will unlock for the child the wealth of social capital which lies beyond the possible range of his limited individual experience' (1915, p.104). Bourdieu employed this notion of social capital[82] or the shared social networks and values held by a group, in his work linking habitus to cultural understanding and symbolic and cultural capital.

[82] Bourdieu defined this social capital

> …as the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition or in other words, to membership of a group which provides each of its members with the backing of the collectively owned capital, a 'credential' which entitles them to credit, in the various senses of the word. (1997, p.51)

Teachers as selectors of texts and school students as readers of texts need to employ Bourdieu's concept of reflexivity and to question the influence of their own social capital instead of simply studying the world as 'though one possessed a perfectly objective viewpoint,' (Bourdieu, 2000, pp.21–3 and Turnbull & Antafally 2009, p. 553).

2.18. Cultural Capital and Place

Bourdieu discussed how forms of cultural capital existed in different fields such as the artistic, literary and economic. He described in *Distinction (*1984, section 83) how cultural capital is an 'internalised code or a cognitive acquisition which equips the social agent with empathy towards, appreciation for, or competence in deciphering cultural relations and cultural artefacts' (Johnson, in Bourdieu, 1993, p.7). This code enables a conscious deconstruction, or an unconscious deciphering of the work.[84]

Cultural capital is an essential element for the understanding of Antarctic place representations by schoolchildren. A text, work of art or digital film is of 'meaning and interest only for someone who possesses cultural competence,' that is they have a knowledge of the code with which the representations it contains were encoded (Bourdieu, 1984.p.2).

Bourdieu suggested that unconscious decoding of representations is only possible

[83]Bourdieu, (1984, p.2)

[84]'This cultivated ability or inclination merges with the cultural code and makes the act of deciphering a 'text' possible.' (Bourdieu, 1993, p.215, & 1984, 1.1)

once the cultural code has been successfully mastered.[85] (Bourdieu, 1993, p.215, and 1984, section 1.1). Developing the 'naive' students' social and cultural capital is essential to enhance their understanding of distant place. It enables them to gain a sophisticated understanding of the cultural artefacts linked to these places. It also 'prevents mutilated perceptions' (Bourdieu, 1993, p.219). However, caution is required when considering cultural capital. We need to remember that it can be biased and temporal because the cultural norms of the time affect the society that has produced and is consuming cultural texts and works of art. Turnbull and Antalffy suggested

> ...when we pose epistemological questions about our interpretations of the world, we should also ask what is in our disciplinary heritage, which structures these interpretations and blinds us to reality (2009, p.549).

Cultural products about the place of Antarctica appear to record objective experiences.When using representations of natural place, students need to remember that the representations of explorers and authors are not neutral. As Yi-fu Tuan reminded us, the explorer's accounts are in fact the embodiment of their feelings, images and thoughts in tangible material (1977, p.17).

Habitus and social capital impact upon the cultural heritage of the initial producers of representations of Antarctica such as the artist, writer and sound recordist.The authors and artists are influenced by their own social capital, that is the roles and status they have within their communities, cultural groups and host nations.

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[85] This was explained as 'An act of deciphering unrecognised as such, immediate and adequate 'comprehension', is possible and effective only in the special case in which the cultural code which makes the act of deciphering possible is immediately and completely mastered by the observer (in the form of cultivated ability or inclination) and merges with the cultural code which has rendered the work perceived possible.' (Bourdieu, 1993, p.215, and 1984, 1.1)

At each further instance of consecration and legitimisation of the work, such as publishing, critical review, gallery, museum, web site selection and academic citation, cultural capital influences the value attributed to the work and whether it becomes published, popular and predominant. Bourdieu remarked the 'works themselves are seen relationally within the space of available possibilities and within the historical development of such possibilities' (Johnston, in Bourdieu, 1993, p.9).

Within the narrative of these 'texts' there are many subjective and culturally influenced comments related to the previous place experiences of the authors. The early twentieth century Norwegians were familiar with glacial landscapes and polar climates. They reveal a positive attitude to Antarctica in their accounts. In contrast the British explorers often express both topophobic and topophilic views. For example Dick Richards on his first sight of the Beardmore Glacier stated 'it was a beautiful calm day, the sun shining brightly and everything on a gigantic scale, full of colour and magnificent, simply magnificent' (Bickel 2001 p.133).

Cultural habitus influenced the conduct of the journeys of exploration. For example, the English considered man-hauling of sledges superior to the use of dogs. Scott wrote in *The Voyage of the Discovery*:-

> …no journey done with dog can approach the height of that fine conception which is realised when a party of men go forth with their own unaided efforts….surely in this case the conquest is more nobly and splendidly won (1907, pp.342-3).

Experience and the training and development of specialist skills 'influenced the acuity and range of their perceptual apparatus' (Tuan, 1974 p.14). This resulted in an

enhancement of the explorers senses and their successful adaptation to the challenge of the icy harsh polar environment. For example, in preparation for polar expeditions, Roald Amundsen crossed Hardangervidda, an isolated icy landscape in the western mountains of Norway in 1893 and spent time examining Inuit techniques for survival and transport in freezing conditions. Once on the continent the early explorers modified their technological equipment such as clothing, tents and huts. Cultural differences led to different approaches in items taken to the continent and their use. John Wylie aptly described this increased familiarity with the natural environment of polar places as 'becoming icy' (2002a, p.249).

2.19.Symbolic Capital and Place

The mediated experiences of texts on Antarctica reflect the position the producer, author or artist held in society. This symbolic capital was described by Bourdieu as 'the degree of accumulated prestige, celebrity, consecration or honour and is founded on a dialectic of knowledge [connaissance] and recognition [reconnaissance]' (Randal (ed.) in Bourdieu, 1993, p.70). The symbolic capital possessed by the individual 'explorer' and the producers of cultural works has influenced the different cultural attitudes to particular distant places, voyages of exploration and explorers including Antarctica. It has led to the development of elite groups of explorers, researchers and producers of cultural artefacts linked to the place of Antarctica, especially the Royal Geographical Society, The British Antarctic Survey and the Scott Polar Research Institute.

The value that consumers have attached over time to Antarctic texts and works of art about places has partly depended upon the symbolic capital possessed by the author or artist of the 'text'. The able seamen on Captain Scott's Antarctic expeditions wrote diaries but extracts from these were published by the leaders and officers e.g. Cherry Apsley Gerrard and Teddy Evans. These 'other' narratives are becoming available to the public online or through recently published biographies. Within the RGS archives, the researcher encountered an album with the personal photographs of an unknown photographer, taken on the Nimrod expedition in 1907-9, showing details of life at the base. This had been saved for posterity but kept in relative obscurity in stark contrast to the formal expedition photographs.

The symbolic capital possessed by the student readers influences the value they put on place representations. As a result, the significant texts on the place and heritage field of Antarctica vary from one nationality to another and the global location of the reader. Through the case study in an English secondary school discussed in chapter 6 the researcher will try to establish what the significant texts for a sample of English school students are.

Symbolic capital has influenced the selection of 'significant' places and locational knowledge for study in the historical and geographical school and academic curriculum, news reporting and documentary production. The perspectives of the examination boards and the schoolteacher in the classroom have applied a further filter on the study of place. A consideration of the cultural, political and economic influences on place construction, or the 'power' that lies behind the representation is essential when teachers take decisions on 'reading' materials for distant places.

Bourdieu's philosophies play a part in understanding students' place perceptions formed through representations of Antarctica. Nick Prior suggested 'we need a Bourdieu whose categories can keep up with an accentuated modernity' (2005, p. 135). The categories may require some modification but the researcher believes his philosophies remain valid.

2.20.Social Place

2.21.Place as a Social Construct

From the 1980s, the debate on place and space in Western academia focused on the development of theories of critical social and cultural analysis. The availability of English translations of the work of Lefebvre, Heidegger,[86] Merleau-Ponty and Bourdieu enabled thinking on space, place and perception to be taken beyond the realist and humanist schools of thought. Considerations of the social and the mental aspects of place became intertwined with cultural and historical perspectives. The relationship of self with both space and place became the focus of debate. The social and the spatial place were seen as linked. It was considered that

> …each shapes and is simultaneously shaped by the other in a complex interrelationship which may vary in different social formations and at different historical conjunctures'(Soja, 1980 p.225).

Henri Lefebvre led the questioning about Cartesian dualism, that is the separation, between the physical world and society. In his philosophical discourse, the '*Production of Space*,'[87] Lefebvre expanded this to a three-way spatial dialectic.

> The physical-nature the Cosmos; secondly the mental including logical and formal abstractions; and thirdly the social, In other words we are concerned with logico-epistemological space, the space of social practice, the space occupied by sensory phenomena, including projects of the imagination

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[86] 'Not in the subject, nor is the world in space. Space is rather 'in' the world in so far as space has been disclosed by that Being-in-the-world which is constitutive for Dasein. Space is not to be found in the subject, nor does the subject observe the world 'as if' that world were in space; but the 'subject' (Dasein), if well understood ontologically, is spatial.'(Heidegger, 1962, p.146)

[87] First published in 1974 and translated into English in 1991

(Lefebvre, 1991, pp.11-12).[88]

The addition of the concept of social or lived space built a bridge between the views of the realists who perceived the material aspects of space and place[89] and the idealists who conceived space and place as mental, cultural and ideological representations. [90] This lived space was considered to be constantly made, and reconstructed by individuals and groups (Relph, 2008 p.12) and as a consequence 'every society and every mode of production produced it own space' (Lefebvre, 1991, p.31). Lefebvre's belief that lived space was socially produced or constructed became the accepted thinking on place. (ibid, 1991, pp.12-13 and p.246)

Space was now seen as 'independent of any particular place or region' (Giddens, 1990, p.19). Space was no longer thought about in isolation. It was realised that the perception of the fluid and dynamic lived space in which place was situated varied with historical time. Henri Lefebvre asked us to question our own ideas on time and space.

> Let everyone look at the space around them. What do they see? Do they see time? They live time; after all they are in time. Yet all anyone sees is movement in nature. Time is apprehended within space' (1991, p.95).

The ideas of cyclical time and the vertical cosmos of the Greeks and the late nineteenth century explorers are gone but time remains. Doreen Massey (2011) remarked that space is 'a cut through ongoing histories.'[91] It is the accumulation of

[88]Edward Soja, 1996, later termed these first space, second space and third space.

[89] Also described as the objective, contextual, physicalist or formal scientific view

[90] Also described as the subjective, the social or mental constructivists view

[91] http://thefutureoflandscape.wordpress.com/landscapespacepolitics-an-essay/accessed 17/10/2011

cultural perspectives which creates the historical depth that pertains to place. The consequence is that the mediated representations of the distant place of Antarctica should be analysed through 'the experience of living in a world in which presence and absence mingle in historically novel ways' (Giddens, 1991, p.177).

2.22. Unbounded Place

With the concept of lived space, places were no longer considered to be bounded, conceptually distinct locales or locations. Space was seen as providing the setting for interactions in a 'locale' or place[92] and for the stretching of social systems across time (distanciation) between different places (ibid, 1991, p.23). Lefebvre observed that this 'unbounded place embraced a multitude of intersections, each with its own assigned location' (1991, p.33). His view was echoed by Doreen Massey in her frequently cited comment

> what gives a place its specificity is not some long internalised history but the fact that it is constructed out of a particular constellation of social relations, meeting and weaving together at a particular locus. (1994, p.154)

Massey's temporary constellations[93] and the social reality of Lefebvre included the concrete abstractions of money, commodities and the exchange of material goods and pure forms such as the language, signs, equivalences, reciprocities and contracts between individuals, groups and locales (Lefebvre, 1991 p.81). These and other temporary 'bundles of space time trajectories are drawn together by individuals

[92]Giddens, (1984) p.xxv

[93]Massey, (2005) p.141

through cognitive and emotional processes' (Massey, 2005, p.119), to create narratives of place. These constellations, actor networks or bundles of space time trajectories influence the representations produced in relation to Antarctica. The case study will examine if and how these place narratives influence the perceptual place-frames students create of Antarctica.

Place the space of social practice or the socially produced organisation of space[94] was no longer regarded as a neutral medium.[95] It was seen as a space of power alongside the power of politics, culture and economics that interweave to create places. Lefebvre noted how these social practices in lived places created work and things through the coordination of the forces of production such as nature, labour, and the organisation of labour, technology and knowledge (1991, p.71).

Those of a Marxist or structuralist perspective, especially Manuel Castells [96] and David Harvey[97] have examined the use of space for production and consumption within place economies. In their opinion, the representations of space by powerful groups led to the colonisation and uneven 'development' of places. They enabled the domination and exploitation of indigenous or local populations and cultures, as well as the material objects of place such as plants, animals and minerals.

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[94]Soja, (1980) p.210

[95] Crang, and Thrift, (2000) p.3

[96] Castells, M. (1999) *Information technology: Globalization and social development* UNRISD Discussion paper No. 114, September, p.11, and Castells, M.l. and Kiselyova, E. 1995, *The collapse of Soviet Communism: The view from the information society,* Berkeley: University of California, International and Area Studies Book Series.

[97] See Harvey, D. (1990) The condition of postmodernity, Oxford: Blackwell, p.355

Technically Antarctica was never colonised. However, Peter Dicken [98]and Philip Crang amongst others have analysed how the diffusion of global capitalism (globalisation)[99] and the creation of different consumer worlds led to new economic, social and cultural networks. These created changes within the lived spaces of places, the geographical imaginations of place, the commodification of place[100]and nature.[101] Soja eloquently summarised these conceptual developments when he stated

> Recent work on place has emphasised how these unbounded places produced through social construction, a reawakening to the spatiality of being, consciousness, and action, a growing awareness of the possibility of spatial praxis, an increasingly recognised need to rethink social theory so as to incorporate more centrally the fundamental spatiality of social life (1989 p.225).

2.23. The Changing Time and Space of Place

Peter Dicken (1986/2010) and Harvey (1990) discussed how time space convergence and compression coupled with capitalist investment created and continue to escalate social and cultural change within places. [102] [103] Although technological change is uneven in its geographical distribution, overall the time taken to cover physical distance between places has been reduced. A comparison of the four month voyage to reach Antarctica by the Norwegian, Roald Amundsen, and the current two day journey by air to land at the Norwegian Antarctic Troll airfield (via Cape Town)

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[98] See Dicken, P. (2004) 'Geographers and globalization (yet) another missed boat?' Transactions of the Institute of British Geographers, 29: pp.5–26

[99], Globalization involves the 'interlacing of social events and social relations 'at distance' with local contextualities' Giddens, (1991) p.22

[100] Globalisation is sometimes referred to as 'Coca-Colonization' or 'McDonaldization' see Urry, J. (1995) *Consuming places,* London ;Routledge

[101] See Castree, N. (2003) *Commodifying what Nature*?

[102] Dicken, P.(2010) *Global Shift* first published 1986, sixth edition pp.75-81

[103] Harvey, D. (1990) *The condition of postmodernity,* Oxford, Blackwell, p.240.

highlights the impact of time space compression. In his discussion of his ideas of time-space-distanciation, Giddens summarised its effect:-

> The advent of modernity increasingly tears space away from place by fostering relations between "absent" others, locationally distant from any given situation of face to face interaction. In conditions of modernity, place becomes increasingly phantasmagoric: that is to say locales are thoroughly penetrated by and shaped in terms of social influences quite distant from them (Giddens, 1990, pp.18-19).

Time space convergence was demonstrated by the sinking of two ships almost a century apart. There was the immediate notification of the sinking of the Antarctic cruise ship *Explorer* in December 2007 with requests for assistance to Chile and Argentina. Within a few hours, there was global coverage in news and media reports. This contrasts with the seventeen months before the news of the crushing by the ice and the sinking of Shackleton's ship, *Endurance,* in 1915 became known.

Today in Antarctica social and visual interactions with distant people can be simultaneous. Innumerable web cams[104] provide immediate contact between people in Antarctica and their homes as opposed to the complete isolation of early polar voyages. Felicity Aston in 2011 used a satellite phone to send text messages converted by IPadio on a web site to audio and text. Time space compression means representations of Antarctica in real time can enter the classroom. Gregory illustrated the movement of these interactions through disembedded space and time.[105] [106]

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[104]McMurdo station webs cams provided by the United States Antarctic programme http://www.usap.gov/videoclipsandmaps/mcmWebCam.cfm accessed 15/10/2015

[105] Disembedding is 'the lifting out of social relations from local contexts of interaction and their restructuring across indefinite spans of time space' (Giddens, 1991, p. 21).

[106] See the diagram 'Time Space Distanciation and Time Space Compression,' Gregory, D. (1994a) *Geographical Imaginations,* p.121 & Gregory, D., (1994b) *Human Geography Society, Space and Social Science*, p.99

2.24.Place and Power

Lefebvre identified that within this disembedded time space framework is the power of knowledge and social power. He described this space as ‘not an empty container but an arena of struggle’ (1991, p.417). Gregory (1994 a & b), Gillian Rose (1993), Castells, (2009), and Doreen Massey (1991, 1993, 1995, and 2005) have also debated the interactions of power in these multiple spaces of place. They recognised that these spaces of place constantly dissolve, flow and recombine with changes in culture and technology. These multiple actors with multiple voices make these interactions possess different meanings dependent upon where the actor and the voice lie on Relph’s continuum of the sense of place (see Table 2.1). Massey (1991) reminded us that some of these voices belong to those who hold more power in a particular place setting than others.

> …Some people are more in charge of it than others; some initiate flows and movement, others don't; some are more on the receiving-end of it than others; some are effectively imprisoned by it (1991, p.149).

She encapsulated this description into the phrase ’ the power geometry of time-space compression.’ It was now recognised that the powerful voices could predominate and influence representations of place through space and time. It is the interweaving of these internal and external multiple interactions that turns places into points of conflict between individuals, groups, nations and ideologies. In Antarctica these conflicts of interactions are focused on conservation, tourism, potential resources and the scientific bases. The research will question if representations convey these conflicts to students to enable objective analysis of the continent’s discourse of place? Do the students understand that the reasons the authors are in

Antarctica, such as exploration, colonialism, scientific, conservation or simply adventure, will impact on their place representations?

2.25.Social Constructivism

Social constructivists had resisted the realist[107] separation of nature and human beings. They had created an academic and educational discourse of place that challenged the Cartesian dualism. Simone Abram has argued that the theory of social construction has been misunderstood. She claimed that social constructivists believe that the material objects in the world exist, but that the experience of nature is organised socially into concepts that are subject to change over time (2003, p.30). She may be correct but this stance has not usually been apparent in the social constructivists' discussions of place within the school curriculum.

As a creation of human experience, natural place had developed an anthropocentric meaning. Place was now seen as the setting for the events of human living. 'It is realised as a set of environmental relations created in the process of human dwelling internally connected with time and self.' (Berleant, 2003, p. 42)

[107] Realism is described as 'a structured approach to the theory and method that is designed to aid scientific explanation. It takes as its point of departure the existence of real, concrete objects and events in the social world. These are assumed to exist in a finite complexity with their causes or determinants.' Jones, J. P. and Hanham, R. Q. (1995), Contingency, Realism, and the Expansion Method, Geographical Analysis, 27: 185–207

2.26. The Nature of Place

> *Imagine a calm sunny day with water tones from the deepest of shades to green and light blue, and scattered about, here and there , dazzling white pack ice, some few feet above the water, relieved by dark shadows cast by the sun. Whales in the water lanes and penguins both in and out of the water, swimming with most elegant grace and then leaping some feet into the air to alight on the ice, skuas and petrels overhead and somnolent seals on the ice and it made a picture one never forgets.* Source:-Dick Richards January 1915 from the ship Aurora on The Trans Antarctic expedition (cited in Bickel 2001, p.33).

2.27. The Cultural Fabrication of Nature

The producers of scientific and artistic representations in the western world interchangeably use a variety of terms to describe the physical characteristics of the natural backdrop of place. These include the setting of place, physical geography, physical features, nature, the natural world, the environment, landscape and scenery. As well as this varied terminology, there is the problem that Castree (2005) and Demeritt (2002) recognised that if 'the cultural references against which nature is defined change over time and space, so too must ideas of what Nature is' (2002, p. 778).

This culturally fabricated Nature discourse began with the Greeks who contemplated and investigated the origin and structures of the natural world. They believed Nature consisted of particles of earth, fire, water and air in a perpetual process of change and rest. 'Nature was movement' (Farinelli, 2011, p.3).

This thinking was replaced in the Western world in the Middle Ages when 'the supremacy and omnipotence of the Creator-god was recognised by everyone' (Tuan, 1979, p.76). Nature was seen as the creation of a deity. Keith Thomas, in 1983, in his

book, *Man and the Natural World:-Changing Attitudes in England, 1500-1800,* described how animals were regarded as creations of God for the use of humans.

Further transformation of the cultural attitudes to nature began during the eighteenth century with the adoption of neo-classicist ideas by the cognoscenti, followed by the bourgeoisie of Europe. During this Age of Enlightenment, the detached observation of nature escalated with many scientists in the eighteenth century seeking to classify the fixed creations of God in the natural world.

2.28.Classified Natural Place

Mary Louise Pratt, in her work, *Imperial Eyes* linked the evolution of 'Europe's planetary consciousness (1992, p.15) to the creation and publication in 1735 of *Systema Naturae* (*the System of Nature)* by the Swede, Carl Linnaeus.[108] This utilised Latin (instead of vernacular languages) to produce a binomial nomenclature for a formal system of naming any species. [109] With classification came commodification of the vegetation of distant places. Improved communications enabled the affluent to send plant hunters across the world in search of new species to add to the list, collect plant specimens and bring the seeds back, thus forever changing places in the western world. They also visited natural places to categorise and collect plants for themselves. Classification of the species of places became part of travel narratives, scientific and exploratory expeditions including Antarctica (ibid page 27-28). The classification of natural phenomena has persisted but these 'enlightened cosmopolitanism' attitudes

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108 Known after his ennoblement as Carl von Linné

109 The first part of the name identifies the genus to which the species belongs; the second part identifies the species within the genus.

towards Nature have gradually given way to the romanticism of Nature and the revival of indigenous mythologies (Brown, M, (2010, p.35).

2.29.Nature as Wilderness

From Neolithic settlements to the nineteenth century colonial frontier and the twentieth century polar frontier, the term wilderness described the natural world outside the areas of human occupation. Cities were seen as a place of culture and civilisation. The wilderness was regarded as a place of threat and fear, 'the region of wild animals over which human beings had no control' (Tuan, 1979, p.80). In western culture, this was particularly true for wild mountains areas.[110] These were considered to be places inhabited by mythical creatures and 'of wilful and places of uncontrollable nature beyond the ordinary human domain' (ibid, p.80). Gradually through religious processes, natural wilderness areas became labelled as pure places, places to find either the universal deity or deities that created the natural world and its flora and fauna. Wilderness areas became places to be conquered, tamed and ordered to meet human needs.

2.30.Picturesque Nature

In 1768, the Reverend William Gilpin published *Three Essays on Picturesque*

110 There are different definitions of the term mountain see Blake, K. S. (2005) 'Mountain symbolism and geographical imaginations,' *Cultural Geographies* 12 (4) pp. 527-531, Debarbieux, B. (2009) 'Mountains: between pure reason and embodied experience,' in Cosgrove, D. & della Dora, V. (2009) *High places,* p.93, Rudaz, G. (2009) 'Stewards of the Mountains' (ibid) and Fisher, P. Wood, J., and Cheng, T. 2004, 'Where is Helvellyn? Fuzziness of Multi-Scale Landscape Morphetry,' in *Trans Inst. Br Geog*.,vol 29, p.106-128

Beauty. These were aimed at the market of the touring leisured classes who, having completed their travels on the 'Grand Tour' of Europe, had begun to explore 'wild' England and to view nature. He provided instructions on where and how to look at Nature and the landscape.[111] It introduced the idea of art with a picturesque style, this was defined by Gilpin, as 'that kind of beauty which is agreeable in a picture' (1768, p.vi).

Gilpin's work encouraged artists to compose a painting so that the landscape would appear to be visually striking. Other books e.g. *An Analytical Inquiry into the Principles of Taste* by Richard Payne Knight in 1808 and *Essays on the Picturesque* by Sir Uvedale Price reinforced the idea of 'an exact taste and judgment in respect to visible objects' (Price, U. 1810 p.VI). Viewing and visiting the landscapes of natural places became part of western culture.

2.31.Romantic Nature

Attitudes towards the Nature of place were further influenced in the second half of the eighteenth century by the European artistic, literary and intellectual movement known as Romanticism.[112] [113] For some of its proponents, it was a philosophical

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[111] Denis Cosgrove (2004) noted that the term landscape may have derived from, the Dutch word landschap which referred to a painting of inland natural scenery. It may have been introduced into the English language during the sixteenth century as a technical term used by painters or it may have derived from the German landschaft a unit of human occupation.

[112] See Arthur O. Love Joy, 1924 "The categories which it has become customary to use in distinguishing and classifying 'movements' in literature or philosophy and in describing the nature of the significant transitions which have taken place in taste and in opinion, are far too rough, crude, undiscriminating and none of them so hopelessly as the category 'Romantic'."

[113] Stuart Curran defines the period of Romanticism from 1785-1825 but he acknowledges 'there is no consensus on the definition of Romanticism rather there are conjoining Romanticisms.' (1993/2010, p.xi)

reaction to the Age of Enlightenment[114] and the scientific classification of Nature. Those who adopted the romantic philosophy believed in an endogenous response to Nature. In other words, within the individual artist there should be imaginative, emotional responses to the nature they sought to represent. If their art was outstanding, it would then convey to the consumer of the artistic representation the sublimeness of 'wild' nature or the horror and awe of the natural scene portrayed. A new discourse of the aesthetics of nature had begun. This emphasised emotion, beauty, the sublime and romantic. It is epitomised in the first two lines from John Keats' epic poem, *Endymion*, (1818) 'A thing of beauty is a joy forever; its loveliness increases; it will never pass into nothingness.'

An analysis of the nature poetry of the time by George Williams illustrated how western humans began to derive 'from nature and objects of the natural world, religious enthusiasm, moral goodness and mystical understanding of both man and God' (1930, p.583). He traced how Nature became 'an elaborate cult, a self conscious worship.' Nature was personified and seen as a source of wisdom, spiritual comfort and holiness' (ibid, p.583). The philosopher and poet Friedrich von Hardenberg (1772-1801)[115] described in the Novices of Sais, the basic tenets to be followed by those who wished to contribute to the 'taming' of nature. These were an attentiveness to subtle signs and traits, an inward poetic life, practiced senses and a simple, God-

[114] Western philosophy in the late seventeenth and first quarter of the Eighteenth Century incorporated the ideas of Rousseau, Immanuel Kant, David Hume and Adam Smith. It was a move towards reason, scepticism and away from religious concepts of the formation of the universe.

[115] Also known as Novalis

fearing heart (Mannheim, 2005, pp.35-37).[116]

In communicating this romanticised concern for nature, literature created myths about Antarctica such as *The Rime of the Ancient Mariner* by the English poet, Samuel Taylor Coleridge. It was published in 1798, in *Lyrical Ballads* and dramatically illustrated by the engraver Paul Gustave Doré. [117] In this poem, Coleridge interpreted the narratives of Antarctic explorers. [118] He aimed to convey to the public, the awe, the extremes and the vivid colours of the Antarctic landscape encountered when the mariner sails into an icy, frozen Antarctic. The poem of the *Ancient Mariner* was part of the Key Stages 2 and 3 of the English school curriculum and it has possibly influenced school children's perception of the natural environment and their Antarctic 'landscapes of the mind.'[119]

'…And now there came both mist and snow
And it grew wondrous cold:
And ice, mast-high, came floating by
And through the drifts the snowy clifts
As green as emerald
Did send a dismal sheen;
Nor shapes of men nor beasts we ken
The ice was all between
The ice was here, the ice was there,
The ice was all around:
It cracked and growled,
and roared and howled
Like noises in a swound

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[116] Wood, D. (2001) 'Novalis's reading of Kant is also evident in the 1798, work Pollen, his first theoretical publication and most famous fragment collection, 'Let Nature be your Teacher. Sweet is the lore, which Nature brings; our meddling intellect misshapes the beauteous forms of things. We murder to dissect.' p.327

[117]It was revised with less archaic language in 1800.

[118]The astronomer on Cook's Resolution William Wales, was Coleridge's schoolmaster at Christ's Hospital School.further sources used by Coleridge are discussed by E.G. Wilson (2003) p.259

[119] Bourassa, (1991), p.13

The lines presented here emphasised its icy isolation, colours and the noise of the ice. Coleridge, in accordance with the romantic culture of the time associated the albatross, an iconic creature of the Southern Ocean, with the spirit world.

> The Spirit who bideth by himself
> He loved the bird that loved the man
> Who shot him with his bow.
> Source:-Samuel Taylor Coleridge '*The Rime of the Ancient Mariner*' 1798

Romanticism combined the mental and the physical reality of nature through the power of the imagination. It emphasised the 'fundamental shifts in the understanding and appreciation of nature, the intellectual reappraisal of industrial progress, the philosophy of agrarianism.'(Bunce, M. 2003, p.17) The industrialised, polluted city had become a place to escape from to refuge in idyllic natural' places.

This Romantic attitude towards the natural place became the cultural norm in the occidental world. Through colonialism, cultural capital and education, the visual tradition of landscape observation and the ideas of 'civilising nature' and 'sublime wild nature' were distributed across the globe. The 'harshness of nature was seldom depicted in geographical sketches of the country scene except where the topic was frontier settlement' (Tuan, 1979, p.140). The Polar regions formed part of this frontier. This stance was typified in four paintings of J. M. W. Turner which portrayed the activities of whaling fleets in the polar seas. [120] Turner produced both an enhanced sense of the polar natural environment and the cruelty and dangers of whaling. He added further romance by borrowing the name of his whaling ship from *HMS Erebus*, a vessel that had participated in the exploration of Antarctica in 1839-43. It was at the time of the exhibition of the painting, lost in the Arctic on the Franklin expedition.

120 *Hurrah! For the Whaler Erebus! Another Fish* exhibited in 1846 is held by the Tate gallery.

A similar approach was adopted in the painting *Erebus and Terror in the Antarctic* in figure 2.2 by John Wilson Carmichael. [121]

Figure 2.2:-Erebus and Terror in the Antarctic.

Source:-John Wilson Carmichael exhibited in 1847 Printed with permission for use with publication restrictions by the copyright holders National Maritime Museum. Greenwich.

Carmichael portrayed the two ships at risk in surging waves. The landscape is romanticised with exaggerated peaks, jagged rocks, glaciers and ethereal light over the mountain in the distance. The image includes the artist's interpretation of the exotic wildlife found in the Southern Ocean. The presence of birds (including penguins), fish and whales implies that food supplies and animals as commodities were plentiful. Western art had rendered up Antarctic wilderness areas to the public as Edenic objects of natural beauty. Diffey aptly commented,

> …the point is often made that it took the poets and painters to make available to us all, the aesthetic quality of 'horrid wastes' such as say mountains (1993, p. 49).

[121] http://www.nmm.ac.uk/collections/explore/object.cfm?ID=BHC1215

Myths met cultural imagination. Natural places were now regarded as pure places for spiritual refreshment ‘where the galling harness of civilization drops off and wounds heal ere we are aware’ (Muir, 1938,p. 317).

In contrast to the romantics, the nineteenth century artist, socialist and philosopher, John Ruskin, ‘devoted nearly forty years of writing and lecturing to the proposition that true landscape art was as rigorous as science in its close observation of natural phenomena’ (Cosgrove, D. 2010, p.123). Ruskin believed that ‘divine handiwork was inscribed as precisely on the natural world as it was written in the Bible, and he constantly read the latter onto the former’ (ibid, p.260). Ruskin’s views on nature influenced the representations of Antarctica through Edward Wilson‘s paintings and sketches and those of his fellow expedition explorers to whom Wilson taught artistic techniques to enable them to sketch the landscape.

2.32.Evolutionary Nature

Scientists and philosophers began to question the belief that each species of animal was fixed in design and created by God. Antarctic and other explorers looked for evidence on their journeys. From 1831 to 1836, Darwin voyaged around South America and Australasia on HMS Beagle, where he made detailed observations of the natural world and collected fossils, rocks and specimens of species. His questioning of his research findings led to the publication in 1859 of the theory of evolution in *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. The belief in the evolution of Nature was and remains a source of contention.

Cultural capital meant that the romantic perspective on nature influenced Darwin and other explorers who sought to discover the southern Terra Incognita and who were involved in defining Antarctica as a place. This conflicted with their rational collection and dissection of nature and influenced their representations. This tension can be identified in their journals. Whilst on his voyages, Darwin, in his diary notes, revealed the influence of Romantic European art in his personal accounts of the natural scene. One such example was recorded in Brazil in 1832.

> After passing through some cultivated country, we entered a forest, which in the grandeur of all its parts could not be exceeded. As the gleams of sunshine penetrate the entangled mass, I was forcibly reminded of the two French engravings after the drawings of Maurice Rugendas 122 and Le Compte de Clavac.[123] (*Darwin's Beagle Diary*, (1831-1836) p.137, Rio di Janerio 1832).[124]

The journals of the twentieth century explorers such as Scott, Wilson and Mawson, and the seaman, Edgar Evans, revealed the influence of romanticism and simultaneously the rational, empirical, scientific approach involving the surveying the landscape, classifying and collecting data to enable the extension of scientific knowledge through the classification and the understanding of the natural world of the place of Antarctica. This approach was taken to the extreme by the geological collection[125] collected and retained despite sickness and death on the return journey of Captain Scott and his four companions from the geographic South Pole in 1912 and the '*Worst Journey in the World*' made in 1911 to collect embryonic Emperor penguin

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[122] Picturesque Voyage to Brazil

[123] Forêt vierge du Brésil, by Charles Othon Frédéric Jean-Baptiste de Clarac, 1819 (Louvre)

[124] Rookmaaker, Kees (ed.) [Darwin's Beagle diary (1831-1836)]. [English Heritage 88202366] (Darwin Online, http://darwin-online.org.uk/

[125] This included Glossopteris-a species of beech tree that became extinct 250 million years ago, which would be used to prove geological theories of continental drift.

eggs by Edward Wilson, Apsley Cherry Garrard and Henry Bowers.[126]

2.33.Nature as Commodity

The wild Polar Regions and landscapes were also transformed into places where nature was dominated, assigned meaning and value and turned into commodities for capitalist societies. Nature was classified and deified but with the exploration of the globe in the pursuit of nationalism and profit, atrocities against indigenous peoples, despoliation of landscapes and extinction of species were still considered acceptable. An illustration of this is provided by Noel Castree's research on the seal trade. In the 1870s in order to produce fur coats and capes for westerners, the near decimation occurred of the northern fur seal population from 3.5 million to a few tens of thousands. This forced a shift to the South polar regions and the arrival of large numbers of hunters seeking to supply commodities to supply the homes of 'cultivated' middle class westerners. Whales were hunted for oil and bone and seals for their pelts (Castree, 2005, pp.157-9). The view of nature as a commodity, including the overkill of penguins and seals by some Antarctic explorers for food, stood in contrast to their accounts of natural beauty.[127] The natural landscapes of the place of Antarctica had been transformed into commodities to be consumed, produced and sold.

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[126] Cherry Garrard, A.,1922/2003

[127] Amundsen having spent a season working as a sealer only hunted for food as necessary

2.34.Transformed Nature

Industrialisation, technological development, increased population and imperial exploration hastened the cultivation of the wilderness across the planet and increased the need for exploration of the southern hemisphere. The continuum of natural places remained with wilderness at one end and artificial nature contained within urban areas at the other. Through the 'place makers and transformers of landscapes space was transformed into place and nature into human landscapes' (Entrikin, 2011, p.91) By the Nineteenth century, natural wilderness areas became sublime places, places for recreation, places to visit and consume and for commodities to be sold. John Muir, the writer and environmental activist summarised the new attitude towards Nature. 'Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity'(Muir, 1901, p.1).

2.35.Natural Place as Landscape

Natural and cultural landscapes have become elements in the valuation, representation and the commoditisation of natural places including Antarctica.The Oxford English Dictionary defines the term landscape when referring to natural place as a description of 'all the visible features of an area of land, which are often considered in terms of their aesthetic appeal as well.' Landscape also describes a picture representing an area of countryside and the genre of landscape painting.[128] However as Denis Cosgrove remarked, landscape has remained 'an imprecise and ambiguous concept' (1984/1998 p.13). In his extensive writings, Cosgrove initially claimed 'landscape was 'a cultural

[128] Oxford English Dictionary accessed online 10/08/2011

image, a pictorial way of representing or symbolising surroundings.' (1988, p.1) He later eloquently defined landscape as

> …a way of seeing, a composition, a structuring of the world so that it may be appropriated by a detached individual spectator to whom an illusion of order and control is offered through the composition of space according to the certainties of geometry (1985, p.55).

Although not all artists and cultures use this visual, linear perspective,[129] it has and continues to influence the visual representations of Antarctic explorers, scientists, fieldworkers or tourists. It has led to the landscapes of the place of Antarctica to be viewed by westerners as picturesque, romantic, the world as exhibition, modernistic or postmodern by the existential outsider. Despite its existence, Antarctic landscape art is rarely used to convey a sense of the natural environment to school students in the United Kingdom although it is used to introduce rural areas of England.[130]

The geographer Carl Sauer and the Berkeley School, UCLA (1920's-1960's) added an empirical descriptive cultural account to the visual approach to landscape. Sauer, defined landscape 'as an area made up of a distinct association of forms both physical and cultural' (1962, p.321) W. G. Hoskins in *The Making of the English Landscape* (1956) and H. C. Darby in the *Domesday Geography of England* (1977) extended this to include an anthropological/historical element. The natural landscape was now seen as spatial, temporal, and cultural.This relationship between human culture and the natural environment of place can be traced over time and the story of the natural place told. This means that landscapes including those of Antarctica are

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[129]See Olwig, (2011) Choros, Chora and the question of landscape p.51 for a discussion on linear perspective

[130] The researcher was engaged for sixteen years with the observation of teaching in UK schools.

> an enduring record of and testimony to the lives and works of past generations who have dwelt within it, and in so doing, have left there something of themselves' (Ingold, 2000, p.189).

Michael Jones (1988) summarised the influences on the formation of cultural landscapes. He employed three modes of explanation of structural,[131] intentional [132] and functional[133] to explain the formation of the landscape and three phenomena, ideology, individual actors and production to provide a link between the modes of explanation at either the micro, meso or macro scales.[134]

This early work of Jones revealed the framework by which place landscapes have often been dissected, quantified and classified.[135] Examples of this approach include the '*Landscape Character Assessment: Guidance for England and Scotland*', produced by the Countryside Agency and Scottish Natural Heritage (2002) used to analyse British landscapes and the protected landscapes designations of the IUCN used to identify landscapes on a global scale including Antarctica.

Cosgrove, Daniels, Gregory, Tuan, Rose, Wiley, Merleau-Ponty, Bourdieu and Ingold in their writings have explored how the landscape of place are much more than visual, historical or positivistic constructs. They are 'ways of seeing, that presumes the social and political context of the actors who engage in and transform the material world' (Entrikin, 2011 p.91). The landscapes of place experienced by individuals are

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[131] Structural Explanations:-technological change, market forces, national policies

[132] Intentional Explanations:-the individual agent:-their motives, preferences, decisions and actions

[133] Functional Explanations:-the landscapes functions in human terms modes of production, natural resources, movement, structures, markets.

[134] Also reproduced in Holt Jenson, A. (2009) *Geography* p.29-31

[135] Landscape character or what is considered to make an area is defined as 'a distinct, recognisable and consistent pattern of elements, http://www.naturalengland.org.uk/ourwork/landscape/englands/character/default.aspx accessed 04/09/2011

now recognised as hybrids, an intertwinement of social, natural, cultural and technological entities that involves the whole body not just the eyes.

> To perceive the landscape is therefore to carry out an act of remembrance, and remembering is not so much a matter of calling up an internal image, stored in the mind, as of engaging perceptually with an environment that is itself pregnant with the past (Ingold, 2000, p.189).

The close sensory connection to the land of indigenous people such as the Inuit and the Australian aboriginal[136] stands in stark contrast to the temporary residents of Antarctica who were and are often previously unfamiliar with this harsh environment and landscape. The representations of this landscape by these polar inhabitants often reflect 'a tension between materiality and perception' (Wylie, 2008, p.203). Denis Cosgrove has pointed out that as a consequence the mystification of Antarctica's landscape 'as a natural outcome of historically deep organic ties between nature, people and their land' did not occur (1996, p.543).

The lack of an indigenous population meant that representations of natural Antarctica, its habitats, flora, fauna and landscapes were until recently seen only through the masculine gaze, the vision of male western explorers, whalers, sealers and scientists. Their imperialistic narratives and visual depictions of the newly 'discovered' places displayed an attitude of the domination of wild nature rather than embodiment in nature. This was expressed in the words of explorer, Roald Amundsen, when he provided the reason for his journey to the South Pole. 'Why? A victory of human mind and human strength over the dominion and powers of nature' (1912, pp. xxix-xxx).

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[136] Tim Ingold (2000) discussed the Inuit experience of landscapes and Stephen Bourassa (1991) described how the close connections of the Australian Aboriginals to landscapes permeated through their art. (1991 p.4)

The masculine gaze meant that during the nineteenth century 'nature was made ever more elaborately feminine particularly through constructions of landscape' (Gregory, 1994a, p.131). This cultural perspective led, according to the geographer, Gillian Rose to a view of landscape in which the masculine gaze sees

> …A feminine body, which requires interpreting by the cultured knowledgeable look; something to own, and something to give pleasure. The same sense of visual power as well as pleasure is at work as the eye traverses both field and flesh: the masculine gaze is of knowledge and desire (1993, pp. 98-99).

This male perspective can be found in past and current Antarctic landscape narratives. Ernest Shackleton (1902) illustrated this feminising of the landscape in his poem, *To the Great Barrier.* when he described the ice shelf in anthropomorphic terms as the 'Mother of mighty icebergs, these Kings of the Southern Seas possessing ' a broad white bosom.'[137]

The difficulties of access and, until recently, cultural and physical constraints on residence in Antarctica have limited the voices of the narratives presented to schoolchildren. The first recorded female to step ashore on the Antarctic continent was in 1935[138] but generally in the 1940s and 1950s women were excluded from the continent (Dodds, 2009). The recent presence of women scientists, artists, writers, musicians, explorers, Greenpeace protestors and tourists has widened the representations of Antarctica away from the masculine, the heroic, and scientific perspectives of the previous narrators. A different perspective to the images from the heroic age was presented by Bloom (1993), Bloom, Glasberg, Kay (2008) and Yusoff

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[137] Shackleton, E. (1902) August 'To the Great Barrier' in The South Polar Times Shackleton: His Antarctic writings selected and introduced by Christopher Ralling. (1983) p.155

[138] Burns, (2001) interviewed female scientists who have been residents of Antarctica.

(2007 & 2005). These present feminist, radical perspectives about the social, cultural landscapes of Antarctica. Women, such as Isobel Williams and Ann Strathie, are researching and writing about the historic journeys of exploration, perhaps bringing new perspectives to the historic events.

Some of these temporary residents of Antarctica, regardless of gender, will possess a weak connection to the landscape of this place or they are alienated by its characteristics. Jay Appleton, sought to explain landscape preference in terms of habitat theory. He postulated that there is an 'aesthetic pleasure in landscape which is derived from the observer experiencing an environment favourable to the satisfaction of his biological needs' (1975, p.73). Appleton claimed Savannah landscapes were the most advantageous place for refuge and icy landscapes were hazardous, unattractive places to inhabit.

Appleton's view is often discounted today. However, evolutionary psychologists such as Peter Kahn (1990 & 200), Stephen Kellert (2002) and Rachel Kaplan and Stephen Kaplan (1989) have linked nature and the human preference for 'safe' landscapes to cultural upbringing. Their research has shown that more challenging landscapes acquire greater appeal with maturity. The findings of the classroom research described in chapter 6 of this study explores whether secondary schoolchildren regard the landscapes of Antarctica with wonder, indifference, or as vast, cold, empty dangerous spaces. Do they conflate this space with other cold places that are alien to their preferred idea of a landscape?

Today the landscapes of the place of Antarctica are seen as 'provisional and constantly changing' (Massey 2011). The natural and aesthetic differences in the

Antarctic landscape (Said's exotic) are emphasised by tour companies and the natural hazards of the landscape are presented as a challenge to be appreciated by modern adventurers.

2.36.Cultural Place:-Landscapes and Exploration

Some place makers in establishing landscape as heritage have created a dialogue between the past and present.[139] The wilderness of Antarctica has a cultural value that transcends time, space and distance. This is gained from 'realistic' representations and imaginative conceptions in literature, scientific reports, art and media. Despite the distance, Antarctic landscapes such as the Ross Ice Shelf and Mount Erebus, described in the narratives of explorers' journals and displayed in photographic images have become symbols of national identity.

By dwelling in place we also shape the landscape. (Ingold, 2000, p.206) Artificial structures have been placed into the Antarctic wilderness. These range from huts, telephone lines and the graves of early explorers to the USA McMurdo Base, airstrips and landing sites for zodiacs. Some claim the huts of Scott, Shackleton and Mawson transcend their environment by

> …conceptually co-mingling with its place, the building uses the site to reinforce its raison d'être, and conversely, the land receives meaning from the structure placed upon it (Robinson, M. 2003, p.144).

[139] See Muir, R. (1999 p.37-41)

This cultural capital has produced a 'Boy's Own adventure' mentality connected to the exploration of Antarctic landscapes. This has been exploited through the narratives of death and the human domination of nature prevalent in the increasing number of biographies of explorers. Kathryn Yusoff claimed that the 'hero shot' is the most extreme example of the representations of the masculine 'being-in' in the natural landscape (2007, p.225). Visual images, including many of Herbert Ponting's[140] iconic photographs of Antarctica, illustrate the pitching of man against nature, which is often portrayed as a threatening presence. Nature has to be conquered, mastered and tamed in the name of nationalistic pride or manhood' (Tuan, 1995, p.139).

What are the siren's voices that drew and continue to entice human beings to Antarctica's unknown landscapes to create places? Wright claimed the 'sirens, sang of different things to different folk' (1947, p.20). Ernest Shackleton revealed some of the complex motives held by early explorers in their desire to go south to the ice.

> Men go out into the void spaces of the world:-some are actuated by love of adventure, some have the keen thirst for scientific knowledge and others again are drawn away from the trodden paths by the lure of little voices, the mysterious fascination of the unknown. I think in that in my own case it was a combination of these factors that determined me to try my fortune once again in the frozen south (1909/2010. p.10).

Salim Kemal and Ivan Gaskell have suggested that explorers and scientists are currently attracted to extreme climatic and hazardous areas because they are 'dissatisfied with the pace and texture of a tamed landscape and are in search of authenticity in the far edges of nature' (1993, p.17). If so, this raises important questions, do the values and beliefs about the nature of place held by modern day

[140] The official photographer and cinematographer on Captain Robert Falcon Scott's British Antarctic Expedition 1910-1912

explorers impact on their narratives and images of the southern continent that are viewed by school students? Do the temporary inhabitants of Antarctica in their scientific, descriptive dialogues only convey the aspects of the continent 'they find to be agreeable and morally or ethically good?'[141] (Kant, 1790 / 2008, par 5). Do these values in turn then influence the representations they produce and the perceptions student gain from them?

Paul Shepheard erroneously commented 'the heroes have gone' and are replaced by international scientists (1997, p.74). In fact there are many new 'heroes' who race across the Antarctic polar landscape with extensive media coverage such as Ben Fogle James Cracknell,[142] Helen Skelton[143]or those walk alone such as Erling Kagge,[144] Robert Swan,[145] and Felicity Aston. [146]

2.37.Place as a Valued Natural Environment

A growing number of late nineteenth century conservationists including John Ruskin, Ralph Waldo Emerson, John Muir and Ansell Adams, through their activism, writings, art and photographs brought the awareness of and concern for the places of

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[141] 'The agreeable is what GRATIFIES a man; the beautiful what simply PLEASES him; the good what is ESTEEMED (approved), i.e., that on which he sets an objective worth.' https://ebooks.adelaide.edu.au/k/kant/immanuel/k16j/ The Critique of Judgement accessed 26/01/2016

[142] Race to the Pole, (2009) Ben Fogle and James Cracknell

[143] Helen Skelton (2012) South Polar Challenge Comic Relief Trek www.bbc.co.uk/news/uk-16670463 accessed 26/01/2016

[144] Erling Kagge, (2005) Philosophy for Polar Explorers, *What they don't teach you in school*. 2nd edition London, Pushkin Press

[145] http://www.2041.com/about-2041/robert-swan/ accessed 26/01/2016

[146] Aston, F. (2013) Alone in Antarctica Summersdale Publishers Chichester

wild nature and the preservation and protection of species and habitat to the public. Their advocation for the conservation of the natural world led to a further gradual cultural shift in the attitude towards natural places in the twentieth century.

Wilderness today is described by the Oxford English Dictionary as a wild or uncultivated region or tract of land, uninhabited, or inhabited only by wild animals.[147] Wilderness places including Antarctica are perceived as threatened, vulnerable and pressurised 'fragile webs of life that needed human protection and care' (Tuan, 1979, p.211). The growth of conservation groups such as the RSPB, the National Trust of the United Kingdom and the Sierra Club of the United States[148] led to the protection of habitats, flora and fauna by national legislations.

The first official government designation for the protection of wild places was *The Wilderness Act [USA]* in 1964. It adopted an anthropomorphic stance towards natural place. Wilderness was recognised in law as 'an area where the earth and its community of life are untrammelled by man. Where man himself is a visitor who does not remain.' (88th Congress 1964)[149] Official recognition of the pressure of industrialisation and population growth on the natural places led to the creation of global non-governmental organisations, the International Union for Conservation of Nature and Natural Resources (1948),[150] and the World Wildlife Fund. (1961). In

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[147] wildēor wild beast (from wild + dēor beast, deer) + -ness; related to Middle Dutch wildernisse, German Wildernis http://oxforddictionaries.com/definition/wilderness?view=uk accessed 05/08/202011

[148] In 1892, John Muir and others formed the Sierra Club:-'To explore, enjoy and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and cooperation of the people and government in preserving the forests and other natural features of the Sierra Nevada Mountains http://www.sierraclub.org/policy/articles/articles-all.aspx

[149] Public Law 88-577 (16 US C. 1131-1136) 88th Congress, Second Session September 3, 1964.

[150] Now the International Union for the Conservation of Nature or IUCN

1963, the global IUCN Red List of threatened Species was produced and in 1980 the World Conservation Strategy.[151] The limits of the Earth's ecosystem and the possible overshoot of its carrying capacity[152] were emphasised by authors and scientists.

The fragility and the bounded place of planet Earth were starkly and aesthetically conveyed by the coloured photographs of the view of the Earth from space. These were taken during the first manned lunar orbit mission to the Moon. They were broadcast live by the Apollo 8 astronauts[153]and viewed by over 1 billion people on December 24, 1968. Pilot, Jim Lovell summed up the impact of the images. 'The vast loneliness is awe-inspiring and it makes you realise just what you have back there on Earth.'[154] Media throughout the world reproduced an image known as Earth Rise[155] which was taken by astronaut William Anders of the Apollo 8 Mission. It is described 'as the most influential environmental photograph ever taken.[156] It appears frequently in environmental texts and media productions e.g. the People's Twentieth Century by the BBC. Through these images the space of the interconnected natural and social flows of the Earth had been made visible to all.

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[151] Published by IUCN, United Nations Environment Programme (UNEP) and WWF The latter had as its objectives 'maintaining essential ecological processes and life support systems, preserving genetic diversity, and ensuring the sustainable utilization of species and ecosystems.' (1980 p.III)

[152] *The Limits to Growth*, 1972, Donella H. Meadows, Dennis L. Meadows, Jørgen Randers, and William W. Behrens III commissioned by the Club of Rome, Beyond the Limits,1993 Donella H. Meadows, Dennis L. Meadows, Jørgen Randers London Earthscan Limits to Growth: The 30-Year Update. 2004 ibid Such authors are sometimes termed 'Eco doomsters'

[153] Commander Frank Borman, Command Module Pilot Jim Lovell, and Lunar Module Pilot William Anders http://www.nasa.gov/vision/space/livinginspace/Christmas_in_space.html

[154] http://nssdc.gsfc.nasa.gov/planetary/lunar/apollo8_xmas.html accessed 24/01/2016

[155] The name given to NASA image AS8-14-2383, For the image see http://www.nasa.gov/vision/space/livinginspace/Christmas_in_space.html accessed 05/09/2011

[156] By wilderness photographer Galen Rowell Life Magazine's 100 Photographs that Changed the World edition see http://www.nasa.gov/centers/johnson/home/earthrise.html accessed 23/01/2016

A later image also affected the way we view planet Earth. Known as Blue Marble, it was taken on 7 December 1972 by the crew of Apollo 17 travelling towards the moon. The Apollo trajectory made it possible to photograph the South Polar ice cap. This highlighted the extent of the Antarctic wilderness region in comparison to other places (see figure 2.3) especially through its use in school textbooks and posters.[157] It inspired the later images of the Earth compiled from satellite data[158] which are used in the current western curriculum. These satellite images emphasise that places on the Earth's surface at the local, national or global scale are inextricably intertwined.

Figure 2.3:-Blue Marble

Source Nasa accessed 03/10/2015 at http://earthobservatory.nasa.gov/IOTD/view.php?id=1133 (image in the public domain)

These images helped to highlight how various dimensions from distant places such as air pollution, climate change and commercial fishing spread across the globe and impact upon the pristine wilderness of Antarctica. The images perpetuate the idea that

[157] The author displayed such a poster in classrooms (probably purchased from The RGS) which usually provoked a reaction in the observer

[158] http://earthobservatory.nasa.gov/Features/BlueMarble/BlueMarble_history.php

Antarctica is at the bottom of the world and emphasise its remoteness to schoolchildren. They may present the Earth as just an 'object for contemplation that is detached from the student domain of lived experience,' (Ingold, 2000 p.206) and that Antarctica is 'a preformed surface waiting to be occupied' (ibid, p.123).

Growing public pressure for the protection of wilderness areas was influenced by oppositional non governmental organisations such as Friends of the Earth (1969) and Greenpeace (1971). This led to cultural attitudinal shifts, epitomised in the attitudes displayed towards the protection and conservation of Antarctica. The demand to protect fragile natural places as a source of resources, the habitat of human beings and other flora and fauna and for their intrinsic existence value has become an inherent paradox that lies behind the conservation of natural places.

> A nature, which is preserved by us, is no longer a nature that is simply not controlled. A natural park is not nature but a park; a wilderness that is preserved is a definite limited wilderness. The paradox is that we have to use our power to preserve a sense of what is not in our power. Anything we leave untouched we have already touched (Williams, 1997, p.242).

Jeremy Cox outlined the intangible values that are related to the aesthetic appreciation and conservation of Nature. His first premise of this moral and ethical debate was 'things of beauty ought to be preserved for so long as there will be beings of moral standing capable of benefiting from them' (1997, p.110). If this approach is adopted, it disregards the culturally unattractive aspects of natural place and displays an anthropocentric view of nature with human beings dominant over the natural world.

His second proposition recognised the right of the material objects and creatures of

the natural world to exist independently of human beings.[159] Cox's third hypothesis was that the 'prospect of certain goods being preserved gives satisfaction to the valuer and it is the gaining of this satisfaction that gives the object value for its preservation' (ibid p.110). This anthropocentric stance is perhaps the reason behind the public support of conservation campaigns to save Antarctic creatures like the penguin through the adoption of a wild creature.

Devall & Sessions (1985) amongst others discussed the cultural shift in attitudes to nature. They believed that humans are not separate from but an intrinsic part of nature. Cox's final premise echoed these ideas of the existence in nature of 'beautiful things and other things is of intrinsic value, is held to be good, and their preservation a duty, other things being equal independently of whether anyone is or will be able to appreciate or enjoy their beauty' (1997, p.110). Influenced by the time and space in which they are conceived these western cultural values and attitudes towards Nature persist today. They are found in the representations of Antarctica that are aimed at school students and in the legislation that protects this wilderness. This is because, as Michael Dear (2011) and Fran Speed pointed out, our

> …capacity for environmental concern in the context of place making rests in the way that we, as individuals, come to experience the world around us: how we determine the world determines how we perceive it, and how we perceive it determines our attitudes and behaviour towards it (Speed, in Menin, 2003 p.63).

The classroom research in chapter 6 of this thesis explores if exposure to new representations changed student values attitudes towards a natural place.

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[159] 'Things of beauty, or of environmental value, should be preserved, not merely because they will in the future benefit beings with moral standing, but 'for their own sakes' (Cox 1997 p.110.)

2.38. The Culture/Nature Dichotomy

Despite the work of the social constructivists, the culture/nature dichotomy remains in western culture as a legacy of the Age of Enlightenment. Castree pointed out that many people find the 'suggestion that nature is not natural, absurd or scandalous' (2005, p.166). It is easy to classify this thinking as naive. However, if you ask those around you for their opinion you will discover it is a widely held view. The questions remain. Do these physical features exist in themselves 'as indifferent objects or only when given form or meaning within systems of mental representations' (Ingold, 2000 p.41)? Is the natural world or the lived space over and within which the social interactions and flows in time and space occur only a construction of the mind, a cultural imagination? Whether a realist or an idealist stance is adopted:-

> Natural space has not vanished from the scene. It is still the background of the picture; as decor, and more than decor, it persists everywhere, and every natural detail, every natural object is valued even more the most insignificant (animal, trees, grass, and so on) takes on a symbolic weight. (Lefebvre, 1991 p.30)

The temporary residents at Antarctica's bases have continued to collate the material manifestations of Antarctica as place. Its characteristics are identified and labelled and the physical processes explained. Does it matter if some of the scientists whose images and data that help to define Antarctica possess a realist or a social constructivist approach towards the natural environment?

To fully define and enable a greater understanding of place of Antarctica today and within the school curriculum, we need to return to Lefebvre's three-way dialectic and consider whether the interactions of human beings with the physical nature or the

cosmos are separate and detached or embodied alongside the social and mental constructions of place. Bearlant commented that it is through 'the interaction of human sensibility with an appropriate physical location that place acquires its distinctive meaning' (2003, p.43).

In the 1970s and 1980s, some scientists adopted an approach known as the 'Sociology of Scientific Knowledge' or 'SSK'. They regarded scientific knowledge as something that was produced and socially constructed. It was, as Carl Bereiter succinctly stated, 'constituted by discourse' (2002, p.83).

SSK scientists recognised that data collection, for example measuring air temperature, was a matter of judgement about how often the data was collected and the process used. It is now accepted that the labels and classifications employed by scientists and explorers are not static. They are part of the temporary, socially constructed constellations of place. Apparent empirical scientific knowledge is therefore debated and disputed, for example, the causal factors of the ozone hole over Antarctica and the impact of climate change on Antarctic ice. Nature is no longer seen as fixed and unchanging. It can be transformed and produced and it is recognised that human impact changes and alters the natural world.

In recent years, Arnold Bearlant, Noel Castree, David Demeritt and others have written extensively on how nature can be socially produced, simulated and even artificially constructed. Approaches such as the hybrid geographies of Sarah Whatmore (2002) and Jonathan Murdoch (2003), the cyborgs of Donna Haraway

(1991),[160] and the actor network theory of Bruno Latour [161]and others (1997) have examined ways in which nature, technology and social interactions have increasingly intertwined and altered the definition of the physical world. The actant in these networks may be non-humans or groups of individuals.

In looking at scientific perceptions of Antarctica as a place, we need to remember there are multiple discourses that have been influenced by the scientist's culture, habitus and emotions. The relationship between the scientist's social and mental, embodied experience of place and the experiences of the physical world that they share in texts, images and music has given the representations of Antarctica a uniqueness over time and space. Judith Gerber has described this process as externalisation,[162]objectification[163]and internalisation[164] (1997, pp.11-12).

To examine in greater depth the reality of science and nature, an area of much contention, is beyond the scope of this study.[165] However, if Tim Unwin is correct in his statement 'to many in the physical and natural sciences, Euclidean space and Cartesian dualism still provides a valuable framework within which to practise research' (2000, p.20), what effect does this have on their scientific perspectives, the

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[160] 'Cyborg-a hybrid of machine and organism, a creature of social reality as well as a creature fiction.' (Haraway, 1991 p.149)

[161] Actor network theory 'aims to account for the very essence of societies and natures' and therefore places. It does not wish to add social networks to social theory but to rebuild social theory out of networks.'(Latour, 1997, p.2)

[162] Externalization refers to the products of human beings, physical as well as mental ones such as landscapes or organizations. Gerber. (1997)'Beyond dualism-the social construction of nature and the natural and social construction of human beings,' Progress in Human Geography 21 (1) p.11)

[163] Objectivation refers to the ways products gain a reality of their own. (Gerber 1997 p.11)

[164] Internalization refers to the transformation of the objectivations to become part of the human consciousness. See section 2.55 in this thesis on perception for a fuller discussion.

[165] 'The Disunity of Nature,' provides a clear discussion of the scientific production of knowledge. Castree, 2005 *Nature:* chapter 4,

scientific approaches adopted and their experiences of the continent of Antarctica? How does this influence the subsequent representations they produce of the continent? Can nature be split 'into, on one side a causal objective nature and on the other, a perceived nature full of so called secondary properties like odours, sounds, enjoyment and values' (Thrift, 2005 p.474) or should it be seen in a holistic manner.

2.39. The Global Protection of Natural Places

R. D. Sack claimed 'place is central to our use of nature because place allows it to become part of our projects, even when the project is protecting or preserving nature' (2001, p. 242). Conservation legislation has turned natural places across the planet into bounded places. It has imposed rules that have constrained activities within the place boundaries and altered the related social and cultural interactions which flow through and over the protected places at the micro, meso and macro scale.

Global protection for wilderness places was finally adopted in 1994 with the IUCN Protected Area Management Categories System. It created a common understanding of the terminology used to identify and classify places for protection.[166] Today, a twelfth of the world's surface is under some form of protective area legislation.[167] In addition, the wild places of Antarctica are protected by their own legislation.

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[166] In 2011, a protected area was regarded as a 'clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values.' (Dudley, (ed.) p.11)

[167] 904 locations are listed for their 'outstanding universal value' including 704 cultural, 180 natural and 27 mixed sites across 151 nations the protection of natural places are assessed as either 1a, a restricted Nature Reserve or Ib a Wilderness Area.http://www.iucn.org/knowledge/publications_doc/world_conservation_debate/?7576

Global irreplaceable place heritage has been protected, conserved and monitored for the benefit of humankind as a whole by the World Heritage Committee (WHC). [168] This included aspects of the social and cultural place of Antarctica. The Operational Guidelines were amended in 1996 to include landscape.[169] Three main categories of cultural landscape were identified, related to religious, artistic or cultural meanings. This legislation has been used to protect historic sites in Antarctica. The rationale outlined in paragraph one of UNESCO's operational guidelines revealed a fundamental aspect of the debate on place. It displayed the anthropocentric view that regards human beings as dominant over, separate from and not a part of nature.

> The cultural and natural heritage is among the priceless and irreplaceable assets, not only of each nation, but of humanity as a whole.[170] The loss, through deterioration or disappearance, of any of these most prized assets constitutes an impoverishment of the heritage of all the peoples of the world. (UNESCO 2008, Para 4)

Pocock, in his critical analysis of the World Heritage Convention, highlighted how

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[168] UNESCO in 1970 was given the responsibility for the recognition and protection of the world's outstanding rare collections and specimens of fauna, flora, minerals and anatomy, and objects of paleontological interest; (b) property relating to history, including the history of science and technology and military and social history, to the life of national leaders, thinkers, scientists and artist and to events of national importance; (c) products of archaeological excavations (including regular and clandestine) or of archaeological discoveries ; (d) elements of artistic or historical monuments or archaeological sites which have been dismembered.This was followed in 1972 by the Convention concerning the Protection of the World's Cultural and Natural heritage. This established, the World heritage convention The WHC coordinates IUCN's work on the UNESCO World Heritage Convention. (UNESCO, 1994 paragraph 2)

[169] The clearly defined landscape designed and created intentionally by people, embracing gardens or parklands constructed for aesthetic reasons and often associated with religious or other monumental buildings and ensembles the organically evolved landscape resulting from an initial social, economic, administrative and/or religious imperative, such as fossil landscapes or continuing landscapes that retain an active social role in contemporary society closely associated with a traditional way of life (the rice terraces of the Philippine Cordilleras); and the associative cultural landscape, marked by powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence (UNESC0 1996)

[170] In the UNESCO guidelines for, 1977 and UNESCO 1994 mankind was used instead humanity.

this legislation enshrined the culture / nature dichotomy of place. [171] It also portrayed an imperialist viewpoint and Eurocentric view with the concepts of 'untouched' nature, the decisions on what areas of fauna and flora should be conserved and the policies to achieve this conservation or to restore areas.

This dilemma illustrates another of the inherent paradoxes in the designation of wilderness areas for conservation. They are perceived to be 'empty quarters which for long have successfully resisted the human imprint' (Tuan, 1979, p.139). Ingold (2000, p.20) reminds us this is an illusion because without conservation legislation, these places would undergo detrimental changes to their natural ecosystems and landscapes. Natural places are not static. Nature is dynamic and physical processes can catastrophically destroy habitats. In fact Shepheard asserted 'What's called virgin land on earth is the culmination of four thousand million years of natural processes, vast and implacable' (1997, p.66).

Additionally, over the surface of natural or unmodified areas[172] and cultural landscapes [173] of Antarctica 'flow the temporary constellations of space and time from distant places' (Massey 1995, p.154). These human interactions have created change

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[171] He commented that 'at a deeper level the heritage split can be seen to mirror the separation of humankind and nature in '*Western Enlightenment Philosophy.*' (1997, p.261)

[172] Natural or unmodified areas are those that still retain a complete or almost complete complement of species native to the area, within a more or less naturally functioning ecosystem

[173] Cultural areas have undergone more substantial changes by, for example, settled agriculture, ... Cultural landscapes can however still contain a rich array of species and in some cases these may have become reliant on cultural management. (Dudley, 2008 (ed.) p.12)

in Antarctic wilderness areas. Ice melts through climate change,[174] there is the long range transfer of pollutants by global air circulation. Increased tourism brings pollution of the environment, the disturbance and destruction of the fauna, flora and historic human constructions.

The debate on the nature of place had shifted yet again. It was no longer just concerned with beauty and conservation but the 'preservation of the natural world and perhaps the survival of planet Earth' (Diffey, 1993, p.53). It was this concern that placed Education for Sustainable Development on the English school curriculum. It led to some students actually being able to visit Antarctica and to send a message 'Protect the Poles, protect the planet,' to the world environment ministers at UNEP's 26th Governing Council in Nairobi, Kenya in 2011.[175] Antarctica as Paul Shepheard discussed, had become 'the place to view the changes we are wreaking on the planet' (1997, p.74). This has influenced the work of scientists and artists at research bases located on the continent. The school case study will examine if this concerns for global environment has impacted on the perceptions students form of the place of Antarctica.

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[174] 'The Antarctic 'desert' holds 70% of the world's freshwater and if all ice in it were to melt to sea, it would raise global sea level by 56 m (Rignot 2011 p. 324).

'The Antarctic continent is a strong contributor to changes in sea level; it is not growing as suggested by climate models, but melting away, very slowly' (Rignot 2011 p. 330).

The research of Stott, P. et al. 2010 also supports the view that human influences are contributing to ice melt on the continent of Antarctica.

175 'Antarctica affects so much of the rest of the world and people see the poles as being far-away places, but really, the poles have a huge impact on what happens throughout the rest of the globe. In turn, the things that happen in the centre, where most people live, affect the poles. Everything is more connected than you think.' Carly Ziter, on behalf of students visiting Antarctica, to the 100 or more environment ministers for UNEP's 26th Governing Council. 2011 accessed at http://www.grida.no/polar/news/4563.aspx 26/01/2016

2.40.Protected Place and Antarctica

The exceptional value to humans of the natural place of Antarctica was demonstrated by its international designation under separate wilderness legislation. The Antarctic Treaty came into force on 23 June 1961 after ratification by the twelve countries then active in Antarctic science.[176] The Treaty currently has fifty two signatories.[177] It covers the area south of 60°S latitude, including all ice shelves. The objectives of the Treaty were to make Antarctica a natural reserve, devoted to peace and science.[178] This has made Antarctica a unique and distinctive place on planet Earth. This wilderness environment has been set aside for ethical and cultural human purposes that transcend the usual rights of nation states. The Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol) was agreed in 1991 by the governing nations of Antarctica. It came into force in 1998. This legislation labelled and defined the place of Antarctica as a human possession of intrinsic value for its wilderness, aesthetic value and as a place for research and an environment in need of protection.[179]

This agreement commits the signatories to the 'comprehensive protection of the

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[176] The signatories were Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Union of Soviet Socialist Republics, the United Kingdom and the United States. Antarctic Treaty Washington, 1 December 1959 at http://www.gc.noaa.gov/documents/1959-Antarctic-treaty.pdf accessed 16/01/2016

[177] See the list of parties in the Antarctic Treaty (Antarctic Treaty Secretariat, undated), at http://www.ats.aq/devAS/ats_parties.aspx?lang=e accessed16/01/2016

[178] The Treaty aims-to:-demilitarize Antarctica, establish it as a zone free of nuclear tests and the disposal of radioactive waste, ensure that it is used for peaceful purposes only; To promote international scientific cooperation in Antarctica set aside disputes over territorial sovereignty Source: https://www.bas.ac.uk/about/antarctica/environmental-protection/protocol-on-environmental-protection-to-the-antarctic-treaty-1991/accessed 16/01/2016

[179] Article 3 of the protocol set out the principles for conservation of the environment and ecosystems accessed at https://www.bas.ac.uk/about/antarctica/environmental-protection/protocol-on-environmental-protection-to-the-antarctic-treaty-16/01/2016

Antarctic environment.' It designates Antarctica as a 'natural reserve, devoted to peace and science.' It sets out the principles for its environmental protection especially the banning of all commercial mineral resource activity. It requires an Environmental Impact Assessment (EIA) of any activities before they are allowed to go ahead.[180] Despite this legislation, Antarctica is still regarded as a resource to be used for human purposes. This is demonstrated by the tourism, research, fishing and heritage industries and the monitoring of the continent by environmental action groups.

[180]http://ipy.org/about_antarctica/geopolitical/environmental_issues/environmental_protocol.php accessed 2015-31-08 and https://www.bas.ac.uk/about/antarctica/the-antarctic-treaty/the-antarctic-treaty-explained/ accessed 16/01/2016

2.41.The Aesthetics of Place

> *...Largely a matter of the pleasure of the senses varyingly informed by the mind. At one extreme, it can be a shudder of delight that is predominately physical in character: at the other extreme, it is a mediated response, cool yet intense of intellectual appreciation* (Source:-Tuan, Y. 1989, p.234)

The aesthetic experience of place has been encapsulated in the writing of Yi Fu Tuan. He describes the duality of perceptions the aesthetic experience may induce in individuals. This may create either topophilia:-love awe and wonder or topophobia:-fear, awe and aversion in the mind of the observer. Yi Fu Tuan ,reflecting on his own experiences, believed travellers to desert and ice environments hold 'a longing to be taken out of oneself and one's habitual world into something vast overpowering and indifferent' (Tuan, 1993, p.155).

Throughout this research, an aesthetic experience of place is taken to be a construct of the imagination arising directly from the physiological experience of the natural place or a psychological experience gained from an artistic representation of a place. It is inextricably linked to an individual's sense of place, culture and habitus. It

> ...offers the willing participant a high degree of aesthetic engagement and engenders an experience that is intensely positive. As we expand beyond our finite boundaries, we may be overcome by a pervasive benignity conjoined with a sense of humility at the power such a situation generates'
> (Berleant, 2003 p.48).

2.42.Sublime Place

In the western world, the most intense aesthetic consideration of a natural place is

said to be a sublime experience. This idea of an intense, emotional artistic response to art [181] arose from Edmund Burke's *Philosophical Enquiry* (1757). In Immanuel Kant's *Critique of Judgment* (1790) it was described as an intense response to nature in the minds of individual humans when responding to the power of natural forces such as a volcanic eruption or the calving of a glacier.[182] The term sublime has many definitions. In this thesis the definition of the Oxford English Dictionary will be used. Sublime is

> …something that affects the mind with a sense of overwhelming grandeur or irresistible power; calculated to inspire awe, deep reverence, or lofty emotion, by reason of its beauty, vastness, or grandeur. Sublime nature has an unintentional beauty. [183]

In the extreme landscapes and climate of this continent, there is juxtaposition of desolation and of paradise. This ambiguity of the wilderness of natural beauty and threatening natural power may give rise to frequent references to the sublime and lyrical references.

All explorers draw upon the cultural attitudes of their time but, from the first voyages of discovery,many references have been made to sublime feelings or intense sensations of awe, fear and wonder that human beings experience in the South polar environment. For example, Scott recorded in his sometimes prosaic log book.

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181 The 'sublime is what pleases immediately by reason of its opposition to the interest of sense' (Kant, 1790/2008, par 29).

182 It is rather in its chaos, in its wildest and most irregular disorder and desolation…… that nature chiefly excites the ideas of the sublime (Kant, 1790/2008, par 23).

183 There are two kinds of beauty: free beauty (pulchritudo vaga), or beauty which is merely dependent (pulchritudo adhaerens). The first presupposes no concept of what the object should be; the second does presuppose such a concept and, with it, an answering perfection of the object. Those of the first kind are said to be (self-subsisting) beauties of this thing or that thing; the other kind of beauty, being attached to a concept (conditioned beauty), is ascribed to objects which come under the concept of a particular end (Kant, I. 1790/2008, par 16).

> Beyond our immediate surroundings is fairyland. The eye travels on and on over the gleaming plain till it meets the misty white horizon and above and beyond, the soft silvery outlines of the mountains. Did one not know them of old, it would sometimes be difficult to think them real, so deep a spell of enchantment seems to rest on the scene (Scott, 1905, p.272).

Such poetic words would seem to indicate as Arnold Berleant claimed, that in Antarctica 'an overpowering nature here bursts beyond the bounds that permit disinterested contemplation and assimilates the human presence' (1993 p.234).

Perceiving the sublime in the Antarctic landscape may be due to the contrast between the natural beauty of the wilderness and the threatening power of nature in these hazardous landscapes and extreme climate. Explorers in Antarctica, in the face of sublime forces of nature, found and continue to find security in shared experiences, in the companionship of human and other living beings such as dogs, ponies, penguins and the participation in familiar, domestic and routine activities. These included the taking of walks, sledging, scientific research work, the pitching of tents, the cooking of food and the building of shelters and research stations. Gradually through dwelling in this place the vast landscapes become familiar.

For both early and modern day residents of Antarctica when possible wilderness was and still is experienced through the accoutrements of 'civilised' living as demonstrated by the food stores at Captain Scott's base in Antarctica and the dining facilities in the new research stations. This provides a sense of security. Kant (1790) questioned the effect of feeling secure on the creation of sublime perceptions and representations.

> Is it because when our own position is secure, their aspect is all the more attractive for its fearfulness; and we readily call these objects sublime, because they raise the

> forces of the soul above the height of vulgar commonplace, and discover within us a power of resistance of quite another kind, which gives us courage to be able to measure ourselves against the seeming omnipotence of nature (1790/2008 par 28).

In a dangerous, isolated and initially unknown place, this sense of security enabled the continent's temporary inhabitants to express their sublime experiences of the ice shelves, the colours of the ice and the Aurora Australis, along with a fear of the darkness of winter and the awe at the rising of the sun in the Antarctic spring and to represent these to others through their journals and artwork.

Sublime references occur in the blogs, narratives and photographic representations of scientists, artists, adventurers and tourists to Antarctica today. Most humans will never travel to Antarctica but ,through historic and modern representations, they become familiar with 'sublime' images of, for example, glaciers. The case study will question whether representations have enabled English students to perceive the landscape of Antarctica to be a sublime wilderness that must be conserved or whether the opposite occurs?

Kant (1790) argued that the sublime cannot be evoked through representations but only through an encounter with the real world. However, the 'sublime' images of the artists Turner and Carmichael and the poet Coleridge discussed earlier in this chapter were created from the secondary images and narratives of the Antarctic explorers. It is possible that the viewing of sublime images of the landscape from the security of everyday dwellings could provide an enhanced sense of the natural place of Antarctica. This stance is supported by the case study findings in chapter 6 of the students perceptions of pristine, icy mountainous terrain after the screening of film clips in a warm classroom.

2.43.Place as Dwelling

How does a natural and even a sublime setting become a place? According to Heidegger, it is through dwelling. He believed that dwelling (wohnen) is the essential quality of humanness. To dwell involves a 'gathering of the fourfold earth, sky, mortal, and the divinities which enables inhabiting of the world in a lived, experienced manner' (Heidegger, 1971, p.213).

The construction of a building enables the condensation of a culture in one place (Casey, 1997, p. 32) but these dwellings can be portable. The camps, huts, bases and stations of Antarctica become a temporary home, a divide between the person and the extreme elements and sublime landscape.[184] Tuan suggested that the act of dwelling and the subsequent social and cultural memories that are created turn permanent or temporary buildings such as ice caves, tents, or shipwrecked ships into places. [185] These residences as Relph noted then turn into homes and authentic experiences (Relph, 1976, p.83).[186]

Tuan, pointed out 'homes can be portable but dwelling leads to familiarity and rootedness with a landscape' (2001, p.71). In 1898 the Norwegian, Carsten Borchgrevink, landed men at Cape Adare under the British flag land they constructed two huts. With the first human habitation on the continent, the social construction of

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[184] 'Camp is a home away from home, which seems all the more home like in the way it caters to and satisfies the body's demand for familiarity and comfort by contrast with the indifference or active hostility of the ice bound nature outside' (Tuan, Y. 1993. p.155).

[185] Tuan (2001)at http://hdl.handle.net/2027/spo.act2080.0040.102 & Tuan (1993) in Kemal and Gaskell pp.139-147

[186] Home is authentic experience 'home whether a house, a village, a region or a nation, is a central point of existence and individual identity (Relph 1976, p.83).

Antarctica as place had begun. This first site of permanent human occupation had become part of the cultural legacy of Antarctica. It enabled ten men to overwinter at the place they named Camp Ridley. Human settlement became part of the map of Antarctica. The creation of photographic and artistic images allowed others to see these new places. This expedition brought western culture to the continent and it introduced another aspect of lived space to Antarctica when dog sledges and kayaks were used as modes of transport. The dogs along with the primus stove proved to be invaluable in the treks to open up the continent. With civilisation came a sense of place-but it also brought human death and the setting up of a Christian grave for the biologist, Nikolai Hansen.[187]

In 1902, William Spiers Bruce and his team on the Scottish National Antarctic Expedition[188] added to both the map and the Antarctic landscape.

Figure 2.4-The Meteorological Station 'Omond House', Laurie Island

Source Scott Polar Research Institute http://archiveshub.ac.uk/features/jan03b.shtml ref. GB 0015 P58/102/227 Printed with educational permission

[187] See Borchgrevink, (1901), Riffenburgh & RGS. (2009) p.149, Baughman, T.H, (1994) for more details

[188] Funded by the Scottish industrialists Andrew and James Coats

They built Omond House (shown in Figure 2.4) on Laurie Island as a meteorological observatory and living quarters and Copeland House as a magnetic observatory. These and later polar research stations have become symbols of geopolitical and diplomatic power. Argentina has maintained Omond House as a research station since 1904 (Riffenburgh & RGS 2009). [189]

Figure 2.5-Ocean Camp on the Weddell Sea Antarctica
(established by Ernest Shackleton)

Source:-Frank Hurley, printed with educational use permission copyright held at theNational Maritime Museum Image P00015009

The image in figure 2.5 shows the creation of a temporary dwelling on sea ice in Antarctica by Ernest Shackleton and his men after the sinking of their ship the Endurance. Their creation of diaries and images means that this temporary place stretches a hundred years into time to still influence the perceptions of Antarctica in western minds today.

The development of representations with a strong sense of place is dependent upon

189 It was renamed Orcados Base by Argentina in 1951

the time spent in a place, the intensity of the experience of the place, previous encounters with similar landscapes or through indirect meaningful encounters with representations. Wylie, in his comparison of the journeys to the South Pole of Captain Scott and Roald Amundsen, commented Antarctica ‘felt homely to the Norwegians’ because of their familiarity with the icy environments (2002b p.179). Ben Fogle noted this cultural difference applied to the British and Norwegians Race to the Pole in 2009.

Embodiment enables ‘an intimate relationship between the human body and the dwelling in which it is placed and where it places itself’ (Casey, E. 2009, p.118). At times, in the isolated, extreme landscapes of the southern polar continent the narratives of travellers express a strong sense of ‘being-in the-world as opposed to the self contained individual confronting a world out there’ (Ingold, T. 2000, p.219).

These narrative and artistic descriptions produced by those with a strong sense of place are often memorable to the reader. In their imagination, they too develop a sense of this place. There are many descriptions and images of life in the huts at Antarctica by the Scott Terra Nova expedition, such as the explorers ‘in the tenements’ at Cape Evans, Scott’s birthday party and the feast of midwinter. Birdy Bowers in a letter home noted ‘our life in the hut here has indeed been a happy one’ (Strathie, A., 2012, p. 119).

Antarctic explorers finding they are in hazardous and difficult situations also display affection for their makeshift dwelling places. Cherry, Garrard and Bowers express content in their makeshift shelter after the loss of their tent during ‘*The Worst Journey in the World’* in 1911, as at times do the men of Shackleton’s Endurance

expedition forced to overwinter in an ice cave (Bickel 2001) and Shackleton's men forced to reside on moving ice (see figure 2.5) and reside in a modified life boat at Elephant Island. Today, there are many online descriptions of affection for the modern and early Antarctic research bases.

The intense experience of creating residences and dwelling in them by the temporary residents of Antarctica created a strong sense of ownership of buildings and the surrounding landscapes. Feelings of violation of their place are described when others used their temporary dwellings. For example, Scott on the Terra Nova Expedition, on finding that the Discovery Hut he had erected on the Discovery expedition had been used and damaged by some of Shackleton's men noted 'there is something depressing about finding the old hut in such a desolate condition. I went to bed thoroughly depressed' (Scott, 1907 p.91).

Place give us a sense of social understanding of how to behave. Dominant groups defend the established expectations in dwellings. 'Where we are:-the place we occupy-however briefly has everything to do with what and who we are and finally that we are' (Casey 1993p. xiii). There were rules for the Discovery Hut with supply boxes separating able seamen from the officers (Scott, 1907) and (Garrard 1922). There were rules in the ice cave of '*The Lost Men'* (Bickel 2001) and there are protocols for life today in the research stations.

The early research base camps and other artefacts in the Antarctic landscape have become cultural symbols of national pride. They are protected by UNESCO legislation. In establishing the huts of the Antarctic landscape as heritage place makers have combined the historical aspects of landscape with current, cultural

elements creating a dialogue of the past and present (Muir, 1999 pp.37-41). The huts have become 'inherited cultural constructs redolent with myths and memories and a considerable intensity of nostalgia' (Massey, 2005, p. 118).

The huts of Antarctica are examples of the cultural heritage place dilemma concerning reality and restoration. Janet Huges in 1991 raised these issues in her discussion about Mawson's Huts at the Commonwealth Bay (erected and used by the Australian Antarctic Expedition 1911-14).[190] These included a need to define what constituted a heritage artefact at the sites, what to preserve? how to preserve it? and what to reconstruct? There was also the question of how to deal with the pollutants such as lead, asbestos, fuel and chemicals identified by Held, Jurgens and Aislabie in 2004 at the Cape Royd hut site and if and how they should be disposed of or removed from the Antarctic environment (Blanchette, Held, Jurgens and Aislabie, 2004 p.189).

The huts in the Ross Sea Region were classified as at risk by the International Council on Monuments Sites in 2004, 2006 and 2008. From 2008, the Ross Sea Heritage Restoration Project Trust has implemented a programme to secure and weatherproof the huts, to conserve and to protect the buildings and artefacts including protection from introduced and endemic fungi.[191] [192] The trusts have adopted the approach of restoration and recreation of the sites to a particular point in time. (1911-12) Sir David Attenborough visited the Terra Nova Hut, with his Frozen Planet

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[190] Huges, J. (1991) Mawson's Antarctic huts and tourism: a case for on-site preservation Polar Record 28 (164): 37-42 Great Britain.

[191] http://www.sciencelearn.org.nz/Contexts/Icy-Ecosystems/NZ-Research/Saving-the-historic-huts

[192] For a record of the project and its aims. See the Antarctic Heritage Trust New Zealand at http://www.nzaht.org and the Natural History Museum web site at http://www.nhm.ac.uk/nature-online/earth/antarctica/antarctic-conservation/hut-project/index.html and the UK Antarctic Heritage Trust at web site http://www.ukaht.org/where-we-work/ross-sea/scott viewed 24/10/2013

film team in 2011.[193] Powerful imagery is presented and Attenborough commented 'It is 'a time warp without parallel. You walk into Scott's hut and you are transported to the year 1912 in a way that is quite impossible anywhere else in the world.' 'Everything is there.' This film clip and others[194] [195] [196] highlight the heritage conservation dilemma restoration of these places can create. Is it authentic? Is the restoration or renewal too intrusive? Is it acknowledged that this is a restoration back to a particular point in time as perceived by others?[197] What has happened to the pollutants?

As a result of the restoration work at the Ross Island huts, it appears that space and time have converged. An illusion has been created that the early explorers have just left. The National Geographic website claims the dining table in the Terra Nova hut still contains bottles and containers that Scott's crew used during meals.[198] The article omits to say that the huts were used by the Aurora depot laying party of 1915-17 who were based at Scott's hut for two years, using the Terra Nova supplies, the dining table and leaving their own artefacts. Dick Phillip's journal words are cited by Bickel

> We were inquisitive agog to poke into every dim recess in the hut. How fortunate that was for us later: for as well as finding much to interest us we came on discarded clothing, some gear for sledging and some general stores that were to

193 This film clip was presented to the case study research students with interesting results. See chapter 6

194 Natural History Museum film clips on the restoration of Scott's hut http://www.nhm.ac.uk/nature-online/earth/antarctica/antarctic-conservation/ viewed 23/10/2013

195 http://www.rgs.org/NR/rdonlyres/715D2155-253B-4B6B-9569-A10B5D6B9250/0/WithScotttothePolePartTwo.pdf

196 http://www.discoveringantarctica.org.uk

197 It is acknowledged if the links are fully explored where the use and changes to each hut are listed.

198 http://news.nationalgeographic.co.uk/news/2010/01/photogalleries/100111-100-year-antarctic-hut-scott-pictures/#/robert-falcon-scott-bunk-terra-nova-hut_11860_600x450.jpg

prove most valuable (2001 p.71).

Nor does it mention that other objects have been put in place by the restorers.[199] Over the years since Shackleton's men left, the penetration of spin drift snow, the weather, visits by the American military and researchers, the removal of objects to museums or for private sale and the work of those trying to preserve the hut have also visited and changed or left their mark on these heritage places (Headland, 2012). Roura (2011) discusses in detail the heritage dissonance that has been created by this restoration approach.[200]

These south polar huts have entered the imagination of adults to whom they have become significant places because of cultural capital. This was demonstrated by the popularity of the exhibitions, *Scott's Last Expedition* in 2012 at the Natural History Museum in London and Canterbury, New Zealand. These recreated Scott's base with items and images from the Scott and Amundsen expeditions.[201]

Satellite technology and Google Earth can now bring these iconic historic places directly to school students. They can easily access and walk into the virtual reality of Scott's hut without any knowledge of the conservation work undertaken on them. [202] A recent web site aimed at school students (not accessed by any of the case study

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199 Wheeler, S. 1997 p.55 and Roura, R. M, 2011 p.123-125

200 Viewed at http://news.nationalgeographic.co.uk/news/2010/01/photogalleries/100111-100-year-antarctic-hut-scott-pictures/#/terra-nova-hut-dining-table-robert-falcon-scott_11858_600x450.jpg3/12/2013 accessed 20/03/2016

201 http://www.nhm.ac.uk/natureplus/blogs/whats-new/2012/01/20/scotts-last-expedition-opens-to-a-packed-house-and-royal-recognition accessed 20/03/2016

http://www.nhm.ac.uk/natureplus/community/ antarctic-conservation/blog/2011/08/11/introducing-scotts-last-expedition-exhibition-at-the-australian-national-maritime-museum accessed 20/03/2016

202 See website http://www.google.com/culturalinstitute/entity/%2Fm%2F09txk5?projectId=world-wonders accessed 20/03/201

students) has activities related to the huts and a video clip by the conservators but the tasks do not encourage the students to engage with this critical debate on heritage conservation.

The artefacts left behind and the exploits of past explorers in these landscapes have entered the national cultural imagination. A 'sentimentalised recovering of sanitised heritage' (Massey, 1991 p.315) is sometimes revealed by this ever growing polar heritage industry in literature, media exhibitions and museums,including the Discovery Museum in Dundee and centennial exhibitions.[203] The use of these 'heroic' images in films and the classrooms of today could lead to the exclusion of the scientific pursuits of many of these early expeditions.

In 2016 there were 40 permanent and temporary research stations operated by 30 countries and these continue to increase. These stations are shown on figure 1.10. The largest is the American base at McMurdo Sound, with 300 personnel in winter and a maximum of 1,250 in the Antarctic summer. [204]

2.44.Place as Home

The explorers' journals and biographies provided details of the home lives of the affluent members of expeditions, which stood in stark contrast to their daily lives on their journeys of exploration. Tuan (2003) noted that these accounts also provided evidence of the individual's need for the succour of home and the pull of exploration. The narratives of the explorers, Shackleton (1909) and Fogle (2009) contrasted the

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203 The Antarctica Areas data base ://www.ats.aq/devPH/apa/ep_protected_search.aspx?type=1&lang=e

204 See https://www.cia.gov/library/publications/the-world-factbook/geos/ay.html for the latest figures

two experiences of dwelling at home and away to emphasise the extreme aspects of the exotic places visited. At the point of departure from the home port or ports on route and from destination bases, the early explorers sent messages home. This sentimental regard for home is utilised to accentuate the difference in places. Perhaps none more poignant than Captain's Scott's letter written in his tent before his death.

Despite the pull of their attachment for home, as Nansen, Shackleton and Amundsen found, once they had re-experienced the familiarity of home, explorers are often drawn back to further voyages and the desire to return to the ice despite the dangers and their fears and the separation from familiar settings. Bearlant believes that this is because experiencing this wilderness offered these 'willing participant a high degree of aesthetic engagement and engenders an experience that is intensely positive'(2003 p.48).

2.45.Sacred Place

Throughout oral and written records, much of humanity has held credence in a reality that transcends the world of the human senses. Artificialists and animists believe in the sanctity of all living things and that all inanimate objects possess life and a soul or spirit.[205] These naïve beliefs have led to the personification of distinctive natural objects such as rivers, trees, mountains, fire, the sun and the moon as major or minor deities. They lie behind the moral, anthropomorphic tales of creatures in stories.

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[205] Piaget , J. (1929)*The child's conception of the world* describes how young children hold beliefs in animism and artificialism perceived in natural features such as mountains, the sun, rivers and trees. The belief that non human entities such as the sun, the moon, rivers, the sea and rocks are sentient and alive. Unpublished research by the author demonstrated the persistence of these naive views in some students.

An alternative view is the belief in the existence of a single or many deities resident in a particular place. Finally, there is the conviction that there is either a universal deity or deities that created the natural world and its flora and fauna. These religious beliefs led to the setting aside of places in the natural world as sites for veneration and contemplation. At some sacred places, buildings or shrines were constructed to provide symbolic set aside points and shelter for worship, for example Stonehenge, mosques and churches.[206]

Although this belief in creation was challenged during the Age of Enlightenment, the Christian religion was part of the narratives of the early western explorers. There are accounts of religious services in the Antarctic camps and on ships. Some explorers express a religious motivation for their travels. This included a belief that they may have been chosen to discover places. Antarctic explorer Dr. Edgar Wilson (a believer in teleology)[207] commented 'God means us to find out all we can of his works, and to work our own salvation' (Seaver, 1933 p.82). In his poem, *The Barrier Silence*, written for his colleagues, this viewpoint is again revealed.

> …Though secrets hidden are all forbidden,
> Till God means man to know,
> We might be the men, God meant should know
> The heart of the Barrier snow.
> (1902, vol. 5, *The South Polar Times*)

Explorers may also possess a desire to become closer to a creator-god through their experiences in the solitude of isolated, dangerous and extreme environments. Despite the lack of a permanent population on the Antarctic continent, there are now five

[206] Sacred is derived from the Latin sacer meaning restricted or set off

[207] A belief that nature is designed by a creator for a purpose

constructions for sacred worship, grave markers and monuments.

Several of the narratives of exploration of place bring in the deist belief in a designed natural world or nature as the composition of a creator. They convey 'the sense that in nature and through the senses paradoxically one is in the presence of something super sensible' (Diffey, 1993 p. 8). Ernest Shackleton illustrated this when writing in retrospect of his travails in sub Antarctic South Georgia (after the loss of his group's few remaining possessions).

> We had suffered, starved and triumphed, grovelled down yet grasped at glory, grown bigger in the bigness of the whole. We had seen God in His splendours, heard the text that Nature renders. We had reached the naked soul of man (Shackleton, 1919, p.226).

Many explorers of isolated places such as Cherry Apsley Garrard[208] have described a combination of feelings of the sacred and the sublime. Do these feelings arise because of social and cultural constructions of place they have encountered or are they related to intense experiences of embodiment? Antarctic explorers have spoken and written about a sense of the holiness of places, melancholy, visions of heaven and hell and encounters with spectres. These include Sir Edmund Hillary's encounter with an apparition of Ernest Shackleton at the Nimrod huts, at Cape Royds, Ross Island.[209] He described how 'a figure had appeared up near the stove and walked towards me with welcoming arms. Then it disappeared. I don't believe in anything really, but I just had the feeling Shackleton was welcoming our group to this old hut of his.'[210]

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[208] Cherry-Garrard, 1922/2003, p.595

[209] NZ herald.co.NZ 5:00 AM Monday Jan 24, 2005

[210] http://www.theage.com.au/news/WORLD/Hillary-slams-UK-over-Antarctic-huts/2007/01/22/1169330803808.html slams UK over Antarctic huts

2.46.Place as Desire for Death (Thanatos)

In the 'Heroic Age' of Antarctic exploration 'the desire to plunge into an alien space that severely tested the body there was probably also an unrecognised desire for death' (Yi Fu Tuan, 1993 p.147). The cult of masculinity led explorers to display their victories over nature and death. In the words of Amundsen, his success at reaching the South Pole was 'the triumph of living over the stiffened realm of death' (1912, pp. 1 xxix-xxx).

If the natural environment could not be defeated, then the explorers were expected at the point of death to display cultural courage to their companions and citizens of their host nation.

> The male body's performance becomes the means by which a moral theatre is constructed in which the body ultimately disappears. The gendered physical body is replaced by moral character (Wylie, J. 2002a p.252).

This belief in courageous human performance was exemplified in the journal descriptions of the last days of the five British men on their return from the geographic South Pole in 1912 and the words of Joyce in 1916 during the ill fated struggle to return to base of the depot layers for the TransAntarctic Expedition in 1916. 'If the worst comes we have made up our minds to carry on and to die in our tracks (cited in Bickel, 2001 p.161). The narratives of courageous polar explorers have had a great impact on future explorers and readers. Yi-Fu Tuan has summarised this debate. 'Explorers of desert and ice may be said to be half in love with piercing beauty and half in love with death' (2001 p.15).

2.47. The Post Modern Technological Place

The complex involvement between human beings and nature described in this chapter has led to the interweaving of imperialism, economics, art and nature at the point of place. Technological development in the publishing industry and time space distanciation created 'texts', combining romantic and scientific philosophies and fictional or nonfictional narratives and images, that were easily accessible for the general population. Education, books and art have exported the cultural discourses and visual traditions of the western world across the globe, influencing thinking about place and they have enabled distant places to enter the reader's personal place.

> Actual countries become countries of the mind, their topography transformed into psychological maps, private worlds. But in the nature of novel writing, these worlds do not remain private but are transmitted back to readers who then in their turn see the original location with changed and awakened eyes. (Tindall, 1991 p.9 also cited in Howarth, p.61).

Today there are new ways of knowing and understanding place. Students can access information directly through the screen in the home,[211] the classroom and by mobile technologies. Satellite images are in fact constructions but they appear neutral to the reader. Technology gives students instant access to expert and inexpert systems of knowledge of places. As a consequence as Haraway noted this can put 'myths into ordinary practice' (1992, pp.183-201). Edward Relph noted how 'mass media creates a mass identity of place that is easily manipulated and that undermines its symbolic identity?' (1976, p.610). The case study in this thesis will try to determine the influence of technological nature on a sample of English school students. It will also

[211] Described as ' the post modern environment of couch potatoes to which the world comes readymade' (Crang. & Thrift, 2000 p.9).

try to ascertain if the unfiltered knowledge they gain ‘may be partial and fragmented and subject to expert revision and change in the light of new evidence’ (Burgess,1991, p.145).

Haraway pointed out that this technological place can become ‘unregulated gluttony’ (1992, pp.183-201). Constant exposure means it is possible to become too familiar with certain representations of place. As discussed earlier in the chapter, as a consequence of the processes of time distantiation, globalisation and especially the development of new technology, the places of the Earth have become unbounded.

Some have argued that this has led to the loss of place identities or placelessness. Placelessness is ‘the casual eradication of distinctive places and the making of standardised landscapes that results from an insensitivity to the significance of place’ (Relph, 1976, preface). Others including Casey (2009) believe that we do not as yet live in a world of placelessness. Buildings and landscapes may appear the same but over them and from them flow different temporal, social and cultural constellations. Casey suggests ‘our lives are so place oriented and place saturated that we cannot begin to comprehend much less face up to what sheer placelessness would be like.’ (2009 ix).[212] The concept of placelessness ignores how the embodiment of individuals within places can lead to strong place attachments. These can be conveyed to others through their representations.

[212] Placelessness is also known as alopia

2.48. The Perception of Place

> *Every advance in the acuteness of our perception will show us something new; but the old and first discerned thing will still be there, not falsified, only modified and enriched by the new perception.* Source, Ruskin, J. (1937) *Modern Painters,* (ed.) A. .J. Finberg Bell & Sons, London, first published 1843 vol. IV, ch. XVIII, 5 p. 283

How do students gain their perceptions of distant places? Is it through their minds, their brains, their bodies or a combination of all three? Perception of immediate and distant environments and how and where the brain retains and analyses data and the impact of this on future perceptions has been the subject of much research and debate by philosophers, neuroscientists, social scientists, educationalists and philosophers.

René Descartes (1596-1650) incorrectly located the existence of a soul in the pineal gland that connected with the body through the brain. Many today do not acknowledge a soul with its religious belief connotations but cognitive psychologists and neuroscientists such as Frith do write of the mind or a centre of consciousness. This chapter briefly explores the contested paradigms of perception because, as the psychologist, Dennis Child, noted ‘we still have much to learn about perception in human beings’ (2004 p.56).

2.49. Neuroscience and Perception

For centuries, scientists such as Leonardo Da Vinci and Richard Gregory tried to resolve the question of how we sense and perceive the world. The scientific research of Helmholtz 1866 and Santiago Ramon y Cajal revealed that the initial detection of sensory information is through the senses and neural activity in the peripheral nervous

system[213] and the central nervous system composed of the brain and spinal cord. Neuroscientists have estimated that the adult brain contains an estimated 100 billion active neurons cell and billions of glial cells which process these signals from the sense organs.

Recent technological developments in brain imaging have enabled scientists to probe into the 'black box' and examine the activity of these neurons. As Jarrett noted, 'psychologists responded in earnest prodding the brain and watching which areas light up and which stay dark' (2009, p.836). This led to the evolution of the field of developmental cognitive neuroscience research (DCN) (Johnson, 2009, p.924). These techniques have increased scientific knowledge about the neural activity involved in the process of perception but they only record observable facts of brain and behaviour levels not the activity of the mind. Until recently, most of these tools were unsuitable for use with children in an educational setting. Braisby and Gellatly noted that

> …the contribution of neuroscience to teaching and learning in the classroom is at the level of theoretical deduction, sometimes it may be at a less palpable level when it adds to confidence in a theory (2005, p.21). [214]

213 This is through the ganglia, nerves and sensory receptors in the sense organs,muscles, joints and skin.

214 Technology is in use in brain labs' across the world e.g. Munich, Washington, Oxford and London. These tools including electroencephalography (EEG), Magneto encephalography (MEG) and Near Infrared Spectroscopy (NIRS0) enable the creation of maps of sensory, perceptual, memory-related and motor brain actions. They measure the electrical activity of neurons in response to stimuli known as Event Related Potentials (ERP).

2.50.Plasticity

Scientific study summarised by the OECD in 2007 has revealed how neurons work and how the neural networks connect. [215] It has been established that there is a rapid development of axons, dendrites and synaptic connections in the developing brain of the child. As a result of learning, synaptic connections develop (synaptogenesis) or disappear (pruning) throughout life.

> The relative activity level at each synaptic connection regulates its strengthening or weakening and ultimately, its existence. Taken together, this phenomenon is understood to be responsible for the structural encoding of learning and memory processes in the brain (OECD, 2007, p.37).

This ability of the brain to engage in lifelong learning (plasticity) means that learning and experiences about Antarctica within formal and informal situations could lead to the development of both new synaptic connections and the strengthening of existing synapses in the student's brains.[216] It is therefore important for students to question and reflect on the existing associated ideas they hold of places. Those who support the theory of constructive perception such as Fletcher (2003) believe that the constructing and remembering of perceptual inferences or encoding is the key process to making information more memorable once we have completed this process of 'meaning making' from sensory information.

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[215] Each neuron consist of a cell body or stoma (containing the nucleus and cytoplasm) the axon (fibres) and a large number of smaller branching structures known as dendrites. The axons can be very short or nearly a metre in length the neurons communicate with one another at points known as synapses by electrical impulses transmitted along the axons (action potentials). These axons are insulated from one another by the myelin sheath. This increases in density as the connections become stable and the speed of transmission

[216] Howard Jones made the point that it is currently impossible to examine this flow of ideas at the level of the synapse.(2011 p.11).

2.51.Encoding

According to Professor Quiroga et al. (2009 and 2014) the whole brain is engaged in encoding. When their research participants were presented with pictures, read or heard the spoken name of known acquaintances and celebrities, neurons in the medial temporal lobe processed the information from different cortical neural networks. They believe that learning the name of a person is achieved by the linking activity of these neurons.[217] If this is correct, introducing students over time to the narratives of discovery and characters involved in Antarctic exploration could aid their ability to develop sound perceptions of this place.

Geake noted there is overwhelming evidence that the brain is perpetually busy (2007, p.125). The influence of this process of unconscious perception has been extensively studied e.g. Merikle and Daneman (1998). It has revealed that parts of the brain are 'paradoxically more active when we are at rest compared than when we're engaging in a taxing, externally focused task' (Jarrett 2009, p.836). This identification of a default mode network (DMN) has demonstrated that

> …an awful lot of what the brain is doing is to do with imaginative processing that we can't necessarily observe, and there are some aspects which you can't study without accepting that they occur spontaneously (Jarrett, 2009 p.837).

DMN may in future be recognised as crucial in the process of perception of distant places. Neuroscientists see the brain as the key to the process of perception but opinions vary on what this is. The brain may pick up information directly from the

[217] The research of Quiroga et al.(2009) and (2014) would mean that multi sensory learning about the Antarctic explorers and scientists would make the learning more memorable such as using artefacts from historic expeditions and modern polar explorers. This was explored but unfortunately, this process was too expensive for a school in the north of England and 'disruptive' to the curriculum to include this process in this research.

environment through the sense organs or act as a processor of sensory information.

2.52.Perception and Cognitive Processing

2.52.1.The Direct Approach to Perception

The idea of a separate mind is rejected by those who adopt a direct approach to perception, such as Gibson and Ingold. They hold a conception of the human being 'not as a composite entity made up of separable but complementary parts, such as body, mind and culture, but rather as a single locus of creative growth, within a continuously unfolding field of relationships' (Ingold, 2000 p. 10). The pickup, direct or bottom up approach to perception is based on the premise of a human being within an environmental system rather than the human being observing this environment and 'on the premise that the information available from the visual environment is so rich that no cognitive processing is required at all' (Pike and Edgar, 2005, p.77).

The direct approach to perception was promoted by Wundt and his followers in the late nineteenth century and developed by Merleau Ponty in 1945, J. J. Gibson from his research with fighter pilots in 1950 and 1966 and Ingold in 2000. They proposed that perception is 'an activity not of the mind, upon the deliverance of sense, but of the whole organism in its environmental setting' (Ingold, 2000, p.258). This approach sees perception as the 'picking up' of sensory information beginning with the stimulus of the senses. It is described as bottom up processing because perception begins with the actual stimulus, such as viewing a painting. The data then flows in one direction from the environment to either the brain or the mind.

Gibson linked this flow of information data to the movement of the observer

through the environment. When we move through the world, objects are displaced.[218] He believed a 'sixth sense,' proprioception gives us information regarding the location, orientation and movement of our bodies and limbs in physical space. Gibson's theory has been described as *ecological perception* because 'it ties perception to action'. In other words 'the way we perceive the world is importantly related to the way we have to interact with or act upon it' (Style 2005 p.67). Gibson, believed

> …when the senses are considered as a perceptual system, all theories of perception become at one stroke unnecessary. It is no longer a question of how the mind operates on the deliverances of sense, or how past experience can organize the data, or even how the brain can process the inputs of the nerves, but simply how information is picked up (1966, p.319).

Gibson's final premise of affordance, that the acts or behaviours permitted by objects and places in the environment to a human (for example a chair is used for sitting on), has received criticism. We learn from others the use we make of objects in our environment. Human beings from different cultures will therefore have different perceptions of the affordance of objects. Gibson himself amended this premise in 1977 and he separated the cultural affordances from the natural environment.

The major criticism of the direct approach to perception has been that it concentrates on the detection of the direct information present in the environment. It discounts cognitive processing because the 'observer does not have to consult their prior experience in order to interact with the world around them' (Edgar and Pike, 2005, p.89 in Braisby and Gellatsy). In other words memory has no role in perception.

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218 Motion parallax

In addition human sensory receptors are not sensitive to all the information in their environment, for example infra red light or the detailed structure of flowers that can be revealed by visual technology. This limits the data the observer receives from the environment. The sensory information received may be incomplete and without reference to past experience, the observer would not be able to recognise this.

If the direct approach to perception is correct and it is the only way in which we perceive information, it could mean that students have to directly experience and interact with a place. This means that the use of secondary images could lead to inaccurate perceptions of distant places such as Antarctica. The case study researches whether passive perception using memorable digital and audial representation could be one way to develop student perception of distant place.

2.52.2.Perception as Information Processing

A more mechanistic view of perception is that of information processing. This regards the brain as a processor of sensory information in a similar way to a computer. It represents cognition as sequences of 'mental activities that occur as the individual interacts with his or her environment' (Richardson, 2008, p.53). Information theory has been criticised because it takes no account of the observer or their experiences.

2.52.3.The Constructivist Approach to Perception

In contrast to these paradigms, most psychologists, for example Gregory, Braisby

and Gellatly and neuroscientists such as Frith and Johnson, have adopted the constructivist, top down or indirect approach to perception. In the constructivist approach, the human being is seen as an active processor of sensory data constructing an individual description of the surrounding world. 'The sense organs transduce physical energy from the outside world, which is encoded and delivered to the brain via sensory neurons for interpretation by the perceptual system'. (Style, 2005 p.71)[219] This encoding process was named perceptual inference by Richard Gregory. [220] Hypotheses are then formed about the most likely interpretation of the available information. This data is believed to be encoded in either the semantic memory for facts or the episodic memory for experiences. Ingold explained this as 'Through a logical manipulation of these representations, the mind formulates plans of action' (2000, p.103).

2.52.4.The Formation of Perceptions

How the encoded information, variously described as concepts, images, pictures in the mind or mental representations or perceptions, is retained by the brain is as yet unknown.[221] It may be held in a symbolic way or classified and categorised as partial or complete images. A naive understanding of this process suggests 'we experience objects as they are by a kind of direct awareness' (Gregory, 1989, p. 672), and that we

219 Some e.g. Bennett and Hacker (2003) dispute that a process of encoding takes place.

220 It is also referred to as to as predictive coding or perceptual processing.

221 Throughout this research, the term perception will be taken to mean 'something internal to the mind that has encoded information about the world, one's knowledge of the world, or a past, present or future experience.' (Braisby and Gellatly. 2005, p.617)

'store' a complete image when we perceive objects, places or people in our environment. Later we reconstruct that copy now called a mental image or mental representation and look at it again (Gregory, 1989, p.75). Most cognitive scientists including Gregory now discount this perspective. The term mental representation when referred to in this thesis will be taken to refer to the event when

> A representation of the type created during the initial phases of perception is present but the stimulus is not actually being perceived; such representations preserve the perceptible properties of the stimulus and ultimately give rise to the subjective experience of perception (Kosslyn, 2006).

Kosslyn noted in 1980 that some people do not seem to have to search for mental representations. They appear to generate them directly and quickly in the context of remembering. Chris Frith summarised this debate on imagery

> What I perceive are not the crude and ambiguous cues that impinge from my outside world onto my eyes and my ears and my fingers. I perceive something much richer, a picture that combines all these crude signals with a wealth of past experience. My perception is a prediction of what ought to be out there in the world and this prediction is constantly tested by action' (2007, p.132).

If we build our perception of the world by encoding new sensory data to create new inferences and hypothesis and if, as identified by the neuroscientists, some synaptic connections are pruned or strengthened during this process each individual will form personal perceptual hypotheses. These hypotheses gradually build up through experience. The outside world or reality is then translated into individual perceptions.

Imagination, wonder, shared culture and language also influence these perceptual hypotheses (Cobb, E. 1977). As all future incoming sensory data is matched to these existing schemas, individual perceptions arise. 'If you have very strong expectations

this will affect what you actually perceive' (Frith, 2009, p.843). 'If the brain has the wrong prior knowledge, our perception will be false' (Frith, 2008, p.128).

The case study used qualitative techniques to identify if and what perceptions of Antarctica are held and to examine the influence of representations on these perceptions. It examined if student perceptions about a distant place can be changed through classroom experiences because the understanding of the role of the senses and the brain in the ability of human beings to perceive and share the physical, cultural and mental worlds of place has still not been fully resolved by science.

2.53. The Cartesian Debate

Philosophers have sought to address the problem of how information can 'cross over from the outside to the inside, from the macrocosm of the world to the microcosm of the mind' (Ingold, 2000, p. 243). The most contentious explanations discuss the existence of a soul or mind that connects with the body through the brain and the mind body problem arising from the ideas of René Descartes. Cartesian philosophers regard the mind and the body as separate entities. Descartes argued that there are two radically different and separate substances:-res extensa or material substance, which can be measured and divided (the body) and res cogitan/thinking substance (the mind or consciousness) which cannot. Descartes' famous saying sums up the ontological dualist concept 'cogito ergo sum,' 'I reflect therefore I am' (Mazzarella, 2000, p.465).

The dualist approach of the perceptual dichotomy between nature and mind

regarded the human as a being, as 'a seat of awareness bounded by the skin and set over against the world' (Ingold, 2000, p.243). The believers in direct perception rejected this concept. Maurice Merleau Ponty, stated

> Truth does not 'inhabit' only 'the inner man,' or more accurately, there is no inner man, man is in the world, and only in the world does he know himself. The world is the natural setting of, and field for, all my thoughts and all my explicit perceptions (1962 preface x).

As discussed earlier the concept of Dasein in the work of the philosopher, Martin Heidegger (1962) '*Being and Time*' also adopted this stance. The sociologist, Tim Ingold, echoed this view. The main premise in his works the 'Perception of the Environment' drawn from his research with indigenous northern people is that

> Perception is not the achievement of a mind in a body, but of the organism as a whole in its environment, and is tantamount to the organism's own exploratory movement through the world' (2000 p.3).

2.54. The Hermeneutic Phenomenological Approach [222]

Today most constructivist psychologists and neuroscientists would agree with Heiddeger and Ingold and regard the human being as within not apart from the environment. By adopting the hermeneutic phenomenological approach,[223] they have recovered the 'experience of being' that lay behind the dominant modes of western thought (Wollen, 2003 p.38[224] and Holt Jenson, 2009, p.24). The beliefs about how

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222 The hermeneutic approach is an interpretative rather than an explanatory approach to understanding and clarifying meaning of the world (Holt-Jenson, 2009, p.220).

223 'Phenomenology a philosophy that tries to capture the universal and general structures of the world as it exists in our minds prior to any empirical scientific investigation'(Holt-Jenson, 2009, p.260).

224 When Heidegger in his work uses the term world he means ' the fundamental understanding within which individual things, people, history, texts, buildings, projects, cohere together with a shared horizon of significance, purposes and connotations.' (Clark, 2001, p.16)

separate humans are from the environment is a key element in the personal and political ideas that producers of representations and students hold about the conservation of wilderness environments such as Antarctica. It is also critical in whether they believe humans transcend and have dominance over nature or whether they adopt Ingold's premise that

> As beings, persons are organisms, and being organisms, they or rather we are not impartial observers of nature but participate from within in the continuum of organic life (Ingold, 2000, p.90).

This section has described the physiological and philosophical debate on perception but it is the 'existence of culture and of other people that makes the mind something much bigger more complex, richer than would be possible with just a single brain' (Frith, 2009 p.25).

2.55. The Imagination and Place

Alongside the mental, social and cultural constructions 'people also have imagination, and imagination, faster than feet, takes them elsewhere.' (Tuan 2001) Most English school students are not able to engage directly with the Antarctic landmass and through active perceptions 'be in this world.' They can only perceive this landmass through the world of others and the cultural context of the visual and audio representations of artists, musicians, explorers, film producers and scientists about the Antarctic world past and present.

Students' perceptions are passive because they are constructed from these 'realities' of others who may or may not have direct experience of the Antarctic

environment. It is the imagination, wonder, emotion or mood [225] shared through culture that enables students to create their own imaginative images of this distant place. The continuum of mind, culture and nature, 'the give and take between inner and outer worlds' (Cobb, 1977), forms the core of this research. The case study will try to determine how children's connections to the place of Antarctica arise.

Antarctic representations may have created 'received schemas, cognitive models, or symbolic structures which map, or "frame" the external world in culturally specific ways'(Mazzarella, 2000). The case study research in chapter 6 explores what happens to the existing perceptions of students when they encounter new ideas about this continent? It questions whether student perceptions changed or if they became interwoven with existing concepts, dreams and imaginative conceptions of Antarctica.

Conclusion

This chapter has traced and explored the discourse on the philosophy of place and interwoven this with the continent of Antarctica. It has outlined how the post modern place of Antarctica 'consists of people, things and bits of geographies, histories, and cultures that have been uprooted, franchised, spun around above the earth, and topologically transformed' (Relph, 2001, p.154). It has explored the cultural traditions

[225] 'Mood is neither mental things nor feelings, but to be in a certain mood is to view the world in a certain way. According to Heidegger it is through mood that we primarily discover and understand ourselves, the world and other people' (Wollen, 2003 p.35).

(the deep history) of the Polar Regions. [226] How these have influenced the past and present representations over the place of Antarctica and the subsequent impact of these on western cultural perspectives of this place.

For school students to gain an understanding of Antarctica they need to consider the past and present network of social, natural and cultural interactions within and over the continent, alongside the natural, social and cultural actants. As a consequence of this review, the researcher believes that for anyone including students to develop a deep sense of the place of Antarctica they need to holistically consider this unique place through a social realist lens. Chapter 6 examines the perceptions held by a sample of students and whether these can be challenged through learning activities that contain social realist perspectives.

[226] Martin Heidegger used the phrase deep history or Seinsgeschichte, (Clark (2002) p.27).

Chapter 3:-Global Place in the English Curriculum

> *Place, body and the environment integrate with each other; that places gather things, thoughts and memories in particular configurations; that place, more an event than a thing is characterised by openness rather than unitary self identity.* Source:-Escobar, A. (2001, p.143)

Introduction

Education systems and curricula are never neutral.[227] Bourdieu's writings identified that they are always influenced by the current philosophies and the social, cultural and ethical values held by those who have the power to develop and implement the curriculum at 'all instances of consecration and legitimation' (1993 p. 9).[228] As a consequence, the consideration of geographic place from the local to the global is not a neutral pedagogy and students are continually exposed to 'filtered experiences' (Gerber, 1996, p.77) and the past cultural perspectives that have accumulated over the place of Antarctica.

This chapter analyses the legacy of curriculum discourses and changes (mainly in the discipline of geography) on the teaching of global place in English state schools today. It considers the pedagogy of place in English schools in relation to the philosophical debate about the nature of place outlined in chapter one. Finally, it examines how educational research and current philosophical and cultural curriculum perspectives influence the teaching and representation of distant place. This includes the critical pedagogy of Freire (1996), the place based education of Gruenewald

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227 See Bourdieu (1993), Young (1971), (2009) Ball, (1990) & Gerber and Lidstone (1996) for a fuller discussion.

228 See sections 2.19 - 2.20 for a discussion of Bourdieu and his thoughts on the cultural construction of place.

(2008), the global futures approach, [229] the concept based approach to the teaching of place adopted by the G. A. and the powerful knowledge of place (Young, 1971).

3.Nineteenth Century Global Locational Place

Research of electronic books, paper children's books and the critical commentaries of Graves (2001), Graves and Murphy (2000), Marsden (2000 and 2001), Ploszajzka 1990, 1996, 1999), Walford (1995, 2001), Wright (1996, a,b,c, 2005) and Zhong & Foskett (2003) revealed that from 1800 to 1900 there was a utilitarian curriculum in English Schools. The knowledge of place location (known as 'capes and bays') and locational facts were major components of school geography. The school curriculum was also linked to the economic needs and political perspectives of the United Kingdom. Two of the enduring aspects of the global pedagogy of place had been created.

3.1.Global Locational Place and Rote Learning

The content of these early geography books was often presented and learnt in a catechetical manner.[230] Although there was contemporary criticism of this emphasis

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[229] Currently (2015) a government funded initiative in England

[230] Willetts, J. (1826) *An Easy Grammar of Geography: For the Use of Schools*, Upon Goldsmith's Much Approved Plan Philadelphia P. Potter at http://books.google.co.uk/books?id=5tcBAAAAYAAJ&printsec=frontcover&dq=inauthor:%22Jacob+Willetts%22&hl=en&sa=X&ei=CIsIU4OND_TH7AbdooCgCQ&ved=0CDsQ6AEwAg#v=onepage&q&f=false accessed 26/02/2014

Goldsmith, J., revised by Hughes , E. 1851) *A Grammar of General Geography*, Green, Brown and Longmans London accessed at http://books.google.co.uk/books?id=0m4DAAAAQAAJ&printsec=frontcover&dq=geography+grammars&hl=en&sa=X&ei=--ENU_SQLcWp7AaU24DwDA&ved=0CE0Q6AEwBQ#v=onepage&q=geography%20grammars&f=false accessed 26/02/2014

on cognitive knowledge not cognitive understanding, as illustrated by Archibald Geikie in his statement[231] 'teaching, only by rote ought to be strenuously abolished' (1887, p.11), recall of factual knowledge about global place has been a pedagogy resistant to change. As recently as 2000, Margaret Robertson challenged this approach when she commented that for 'memorised facts on the location of place to be valuable and contribute to the development of thinking, then meaning through connections to self and the world are essential' (p.15).

In the United Kingdom, topographical, locational or gazetteer knowledge is still the 'popular' view of geography, as the many geographical questions on television shows, pub and community quizzes testify. Many teachers, use online place quizzes or iconic images of place, often in an ICT frame as a starting point or summary for the study of distant places.[232] [233] Some locational knowledge is essential for the understanding of place. Matt Rosenberg, the author of an American website used by English geography teachers, presents a view that learning about locational place is essential to serve the needs of humans.

> It is this mental map that understands the relationship between places for security, resource, communication, and transportation purposes. The knowledge of the absolute location of places on the map is vital in today's global society.[234]

This stance ignores any environmental or physical reasons why students should study place location and carries political connotations. There is a need for the teaching of

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231 Geikie, A.(1887)*The Teaching of Geography: Suggestions regarding principles and methods for the use of teachers London and New York Macmillan*

232 http://www.wiley.com/college/kuby/0471701211/mapquizzes/s_africa/countries.html accessed 26/01/2016

233 Extensive researcher observation of teaching in classrooms and school schemes of work

234 http://geography.about.com/od/studygeography/a/calltoaction.htm accessed 14/10/2015

place in the school curriculum to go beyond place identification and to clarify the values and attitudes that surround locational place.

3.2. Locational Place and Cartographic Knowledge

Chapter Two discussed how Lefebvre (1991), Harley (1996, 1998), Harley and Woodward (1987), Cosgrove (2005) and Heidegger (1962 and 1971) emphasised how when local or global place is confined into bounded places within narrative and enframed in cartography, it becomes embedded with historical, ideological, cultural and political connotations. Chapter one demonstrated with reference to Antarctica how 'these place names are unstable:-they have histories, their meanings twist and change through the play of the trace' (Winter, 2011 p.347) particularly the influence of nationalism. She reminded us that map labels or locational knowledge 'limit and conceal other ways of knowing which may be more rich, more objective and more just.' (ibid)

Secondary school teachers, planning to incorporate the teaching of global place location at the macro or micro scale need to deconstruct the map to become critically aware of the cartographer's intentions and the influence of their own cultural habitus[235] on their selection and interpretation of maps. This will enable the teacher to select varied map representations which will allow students to discuss and question the representations. This is particularly important in relation to the thematic maps frequently found in school text books due to the influence of the cartographer on the selection and interpretation of data.

[235] See section 2.16

3.3.Locational Knowledge and Map Interpretation

Research on locational place knowledge in children began with the behaviourist and humanist geographers e.g. Lynch (1970), Pocock (1976), Matthews (1980) and Golledge (1983, 1997).[236] Their work was followed by numerous cross disciplinary studies and articles concerning western children's understanding and identification of places on maps including those of Spencer and Blades (1986, 1993 & 2004) Kitchen and Blades (2002), Weigand (1992, 1995, 1996, 1996b & 2006), Catling (2005) and Barret (2007). These highlighted the importance of spatial thinking and factual knowledge in student understanding of place.

The research and analysis of student map interpretations led to the recognition of the map skills students need to develop a knowledge of locational place. Van der Schee's research identified the skills of map reading, analysis, and interpretation (1987, p.66). Weigand emphasised that when using maps, students need to gain not only declarative knowledge (knowing that) but procedural knowledge (knowing how) (2006, p.80-81).

The starting point for the study of place usually begins with the location of places on a map.[237] Examples of this include a module on the European Union devised by teachers on the Royal Geographical Website[238]and the Geographical Association's Primary website with ideas to teach the locational aspects of the 2014 *Geograph*y

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[236] See chapter two sections 2.18-2.20

[237] The researcher's personal experience of lesson observations in over 100 schools

[238] Geography the Language of Europe at http://www.rgs.org/NR/rdonlyres/B5AA9145-02F6-4E99-AEA2-52BB4ED6D762/0/KS3_Europe_Moduleplan.pdf accessed 27/03/2014

National Curriculum. The latter recommends that

> The Americas are a vast place to teach about. Start by developing pupils' core knowledge e.g. knowing the location and names of the North and South American continents and their make up in terms of countries, regions, key cities and physical features. Then, drawing on the idea of a 'zoom lens,' study places in more depth, making comparisons between them. [239]

Unfortunately, introducing places through locational knowledge ignores Simon Catling's (2005) advice that students also need to develop an affective knowledge of place. This zoom lens approach and too much study at the micro scale could ignore the student's own connection to a place and the links of a particular place to the wider world.

Older students also need to understand 'the map is neither mirror nor miniature. It is a model of the world, a carefully controlled symbolic abstraction' (Liben and Downs, 1989 p.149). This can be achieved through pedagogy by considering the critical questions of who created the map, when and why? Followed by an examination of the locational facts of what? where? when? why? and reflection on possible future changes.

3.4.Locational Place and Global Map Projections

Wright (2000) Wiegand (2006) and Google[240] have outlined the mathematical misrepresentation created by flattening the 3D globe onto 2D maps. This creates

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[239] Primary Geography Curriculum Content at http://www.geography.org.uk/news/2014nationalcurriculum/primaryncontent/ accessed 18/03/2014 The author is unknown

[240] See https://support.google.com/earth/answer/148111?hl=en accessed at20/02/2014

misconceptions about the actual size of continents. The use of equal and interrupted equal area maps[241] should enhance student awareness of the true size of continents including Antarctica. The Eckert IV map projection was selected for use in the English National Curriculum in 1995. It distorts the continents around the Equator and it therefore reduces the size of Antarctica. David Wright's interrupted map of the world, emphasises the extent of the landmass but it may create the perspective that Antarctica is not a continuous continent.

3.5. Research on Global Place Knowledge

The model for most school research on global locational place knowledge was a large scale study assessing the freehand recall maps of 2488 global undergraduate students run by Saarinen (1987). In this study 80% of research students at various locations across the world produced eurocentric maps. The remainder were either sinocentric or americentric. He concluded that knowledge of the world map developed with increased social and cultural experiences. Similar studies and results include Saarinen and McCabe (1995), Pinheiro (1998) with Brazilian students and Chokor (2003) with African students. The research on locational place moved into schools with Bosowski's (1981) study of 2,225 K-12 students in several locations across the globe to evaluate students' cognitive maps of the world. Her research showed that students' constructed map images of the world were influenced by the distance of a place from a student's home, current events and cultural factors.

[241] Peters Projection, Mollweide; Sanson-Flamsteed; Hammer; Eckert IV, Aitoff projection and the (W)Right map used in the *Phillips Children's Atlas* from 1987

Axia (1992) and Axia & Bremner (1998) adopted an approach using free recall of the map of Europe to demonstrate that eight and ten year old children's knowledge of the location of countries in Europe increased with age and formal learning. The research of Wiegand (1995) used a free recall map of the world with 268 English primary pupils. His data, which he classified into five categories, revealed that younger children drew circles, enclosing a mixture of continents, countries and streets as discrete entities. By the age of eleven, most children depicted all seven continents and the accuracy of their drawings of the shape and size of the places improved with their age (2006, p.89-92). Metz (1990) obtained similar results with his research work with 125, 8th grade students. He established that developing knowledge of geometric reference points such as the Equator improved children's spatial literacy.

A research project undertaken in Estonia in 2000 and repeated in 2012 used free recall maps and the naming of countries on a contour map to collect data. In these studies, children drew the neighbouring countries most correctly. The study confirmed that travelling experience was a helping factor, but not the main source of geographical knowledge for these students. They concluded that formal learning of locational place was also needed. (Hannust and Kask 2013) [242]

Harwood and Rawlings (2001) in their study with 26 English students aged 10-11 deduced that children were better at 'depicting the location and size of continents rather than their shape,' that they held misconceptions about the locations and that there was an eurocentric bias to their maps. These findings indicated that individual student experience influenced their spatial thinking and locational map knowledge

[242] The results are in line with the study of Barrett et al. (1997) and Barrett and Farroni (1996)

and again that formal classroom experiences extended their locational place knowledge.

Saarinen (1987), Bell and Archibald (2011) and Wiegand (2006) have criticised the tasks used in free global recall map studies on the basis that they reflect drawing ability and cognitive memory not just spatial understanding. Tversky identified that the process of alignment occurred when people group two spatial entities (they remember the objects more in correspondence than they actually are). They identified that there is also a tendency to rotate objects towards the north/south or east/west axis of the map rather than depict the precise orientation (2005, p.223).

Despite these limitations, the use of free recall maps can provide the researcher or teacher with insight into student exposure and experience of global maps. Recent research has identified how these maps can be used to develop the pedagogy of locational place. Chiodos (2007) in 1999 used the technique with 44 American seventh grade students. He then taught four 'protocol' lessons and retested student knowledge. His work demonstrated that this structured teaching enhanced locational cartographic knowledge and graphical skills.

Susan Lowes (2008) provided a comprehensive account of how free recall maps reveal student place knowledge and their awareness of the nested relationship of places[243] and geo-graphicacy.[244] Her interpretation of the student's free recall map data identified personal places, reflected student experience, ego-centricity and emotional connectedness. Lowes provided a useful coding system for teachers to use

243 The classification of places e.g. into village, town, city and a hierarchical order.

244 The shape, orientation and position of places.

free recall maps as a diagnostic classroom tool to establish student knowledge of world locational place.[245] [246]

3.6. Research on Global Locational Knowledge

To try to ascertain the influence of map projections on global place knowledge, Wiegand and Stiell (1996a) used blank globes and asked the children to draw on them. In a second study (1996b), they asked the children to identify continental shapes, arrange them to form a map of the world and to estimate the sizes of the continents. These students and those in Metz's research (1990) used Antarctica and the Arctic as geometric points to locate other continents.

In 1998, Weigand asked seventy-two children from six primary schools to draw the Earth's land masses on a blue sphere representing a globe. In this study the students displayed a 'tendency to represent Europe and Africa as a single land mass and Europe-Asia as separate land masses.' Wiegand believed these effects were 'a result of the partial viewpoint obtained from a globe, compared with the view of the whole world obtained from a map' (ibid) and also a perception that the South is hot. In Holloway and Valentine's (2000) online study with New Zealand and English children the latter perceived New Zealand to be hot because it is in the southern hemisphere.

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[245] Lowes classified the maps as lists (places they know), puzzle maps, edge island-maps with or without place names and the traditional map. and provided clear photographic exemplars.

[246] See https://www.academia.edu/1106545/MAPPING_THE_WORLD_Freehand_Mapping_and_Childrens_Understanding_of_Geography_Concepts accessed 11/04/2014

3.7.Global Locational Place and Map Interpretation

These studies on global locational knowledge highlight the need for this locational place study to begin in primary school. To compensate for the misperception of the size and location of continents and countries, the use of varied projections, non euro-centric maps, globes, virtual globes and satellite images such as Blue Marble.[247] should be a part of but not the starting point for the teaching of place. Emily Rotchell in *Barnaby Bear Investigates the World* (2014) and Paula Owens in *Little Blue Planet:-Investigating Space Ship Earth* (2011) and on line images have drawn together techniques to enable primary and lower secondary school teachers to teach global locational place knowledge, combining maps, models of globes and some images of places including Antarctica, although these landscape images are limited. For older students the use of GIS programmes, such as GIS world mapper,[248] ArcGis[249] or Nationmaster[250] could enable students to select data to help them gain a scaled perception of place. ESRI UK has produced interactive digital maps for use with the English National Curriculum of 2014. 3D digital maps should convey a clearer representation of the size of the continent of Antarctica to students.

The children in Wiegand's locational sphere studies found the task engaging and intriguing but it would be time consuming for teachers to recreate the equipment and analysis. A black board globe could serve the purpose but today these are expensive.

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[247] See Figure 2.3

[248] http://www.worldmapper.org/index.html accessed 14/03/2014 Mark Newman, data by Danny Dorling, text by Anna Barford, quality control by Ben Wheeler, website by John Pritchard, poster design by Graham Allsopp, gridded cartograms and recent updates by Benjamin Hennig.

[249] http://www.arcgis.com/features/maps/index.html

[250] http://www.nationmaster.com

In the twenty-first century classroom, a digital globe, whiteboard globes and the interactive Oxfam web site comparing the Peters and the Mercator map projections[251] could assist secondary students' ability to understand map projections. The current research and teaching resources of Michael Eisenberg and his students at the University of Colorado demonstrate the effectiveness of this approach.[252] However as the case study research will identify for global locational learning of place including the place of Antarctica to be meaningful to students, the learning needs to be linked to all the 'real' and imaginative aspects of places including landscapes not just locational and biological knowledge.

3.8. Global Locational Place Pedagogy and Antarctica

In the Nineteenth and the beginning of the Twentieth Century, 'the possibly vast island of Antarctica' was still awaiting full discovery.[253] School maps marked the Antarctic Circle not the continent, for example in Goldsmith's text of 1824.[254] The world map (1920) in *Asprey's Atlas* has white space without a coastline.[255]

It is a trend that has persisted as discussed in chapter one, Antarctica is still

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[251] projectionshttp://www.oxfamblogs.org/education/mapping_our_world/mapping_our_world/l/lesson1/index.htm accessed 06/02/2016

[252] Software and teaching suggestions can be found at http://mathsphere.org/resources/ accessed 16/04/2014

[253] Herbertson A. J. (1901) Notes on the Teaching of the Geography of the World, The Geographical Teacher, 1, (1) October p. 22-26 Sheffield Geographical Association accessed at: http://www.jstor.org/stable/40553663 12/02/2014

[254] Goldsmith, J.(1824) *A Grammar of General Geography for the Use of Schools and Young Persons [microform] : with maps & engravings)* at https://archive.org/details/cihm_42645 accessed on 06/01/2014

[255] See figure 1.10.

missing on some maps and internet virtual maps today including examination materials.[256] On an Eckert IV map projection, Antarctica appears as a long line of land across the bottom of the map. Wiegand and Steill's research with primary children suggested this may lead to over estimation of the size of the continent (1996a cited in 2006 p.93). Maps based on different longitude or latitude, can now be found in many atlases. Few of these maps are centred on the South Pole and, as David Wright (2000) remarked there is no 'right way up for the world.' In the case study for this thesis many of the students described Antarctica as 'at the bottom of the world.'

Locational knowledge about the Antarctic continent and map interpretation should be core knowledge for all students. Students need to achieve a deeper sense of place for this continent because, as David Lambert observed

> Geography is not simply concerned with the basic 'vocabulary' of the world i.e. the 'facts' recorded in the atlas but its 'grammar' too. The latter involves pupils in understanding how the world 'works'
> (Lambert, 2004, p.76 in White, J. *Rethinking the Curriculum*)

The research case study in Chapter 6 will show that the teaching of global place has to go beyond locational place knowledge to the locale and link this locational knowledge to the students' own personal or ethno-geographies,[257] discipline knowledge,[258] to fictional representations and the students' imaginative and emotional geographies.

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[256] The Antarctic continent and active volcanoes are missing from the maps for Pearson Edexcel Level 1/Level 2 GCSE (9-1) in Geography B –Sample Assessment Materials –Issue 2 November © Pearson Education Limited 2015 http://qualifications.pearson.com/content/dam/pdf/GCSE/Geography-B/2016/specification-and-sample-assessments/SAMs_GCSE_L1-L2_Geography_B.pdf accessed 20/12/2015d

[257] Catling (2003) Catling and Martin (2011)

[258] Bonnett (2003) notes the discipline of "Geography provides knowledge of Earth's physical and human systems and of the interdependency of living things and physical environments

3.9.Locale or the Regional Synthesis of Place

In the school curriculum from the nineteenth century, alongside the maps and texts providing memorable locational facts of place, textbooks were introduced that contained descriptive accounts of regional and global places. The numerous editions of Dusfresnoy's textbook, *Geography for Children: or, a short and easy method of teaching and learning geography: designed principally for the use of schools* were based on the view that 'geography is a description of the whole globe of the Earth, or known habitable world; together with all its parts, limits, situations and other remarkable things (1806, p.xi).

In the mid nineteenth century, with the continued exploration of the southern hemisphere, vague descriptions of Antarctica began to appear in school texts. In *New Geography for Children* (1855),[259] Beecher described the 'Frozen Zones as cold and cheerless.' Mary Lucy Hall echoed this view with her claim in 1870 'that it is a place to be avoided.'[260] The accompanying full page illustration of a small wooden ship encircled by a high wall of ice, a grotesquely shaped iceberg, a group of men who are tiny figures in the landscape and crudely drawn seals reflected the cultural interest of the time in the sublime elements of natural place.[261] Even after the discovery of the

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[259] Written by Harriet Beecher Stowe The English edition, was written 'with the assistance of an English lady'. at https://play.google.com/books/reader?id=-2EBAAAAYAAJ&printsec=frontcover&output=reader&authuser=0&hl=en_GB&pg=GBS.PP1 accessed 28/02/2014

[260] We seem to have very little to do with it and no one cares much for it. Whales are caught there and from time to time. Some men have taken a notion to sail on it waters and see what they could find. Only a little land has been seen and all of it is cold and dreary and out of the way of the rest of the world. (1870 p.33) *Our world:* or, *First lessons in geography for children* accessed 14/10/2015 at http://catalog.hathitrust.org/Record/011606164

[261] See section 2.23.1

South Pole, the *Cambridge Geographical Readers VI Some Great Regions of the World* 1925 stated 'it is true that there is an Antarctica land which is now exciting a great deal of interest but its importance is comparatively small' (p.25).[262]

3.10.Geographical Readers and Regional Place Pedagogy

Until the 1950s students used these geographical readers alongside textbooks. A mix of fact, fantasy and morality, they were often used in general reading lessons. Their educational purpose was outlined by C. N. Heath when she posed the following question to parents

> What then, we may ask, should be the aim of a geography book? It should be to give children living ideas connected with the world around them, enabling them to understand by the aid of books, the scenery, climate industries, and manners and customs of lands other than their own (1903).[263]

Heath suggested that such a reader should be presented in the style of a travel book. (ibid)

In 1886, the Royal Geographical Society (RGS) concerned about the 'unsatisfactory nature of geographical teaching,' commissioned a report from John Scott Keltie (p.450). In this, he cited as good practice the 1885 instruction for HMI inspectors of primary schools that geography should include

> A description of the physical aspects of the countries' and 'establish some association between the names of places and the historical, social or industrial facts which alone make the names of places worth remembering (p.451).

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[262] Cambridge Geographical Readers VI:-*Some Great Regions of the World*

[263] https://www.amblesideonline.org/PR/PR14p930UsesBooksGeography.shtml. She was probably referencing Charlotte Mason's *The Ambleside Geography Books* written between 1880-1892 Accessed 14/10/2015

Keltie's comments perhaps need to be remembered by those current curriculum designers who over-emphasise locational knowledge in the study of place. At the time, his report led to the publication of textbooks by leading academic geographers, especially H. Mackinder[264] and A. J. Herbertson, and firmly established regional synthesis as the pedagogy of place for the next one hundred years.

3.11.Regional Place Pedagogy and the Scientific Approach

Herbertson's paper of 1905, *The Major Natural Regions: An Essay in Systematic Geography*, introduced the scientific approach to the teaching of regional place with the division of the world into regions described in a systematic and standardised format. His biome maps, based on the multiple criteria of climate, natural vegetation and altitude, continue to be part of the teaching of place today. [265]

This regional scientific place was combined with the assumed local knowledge of the child. This was demonstrated by Leonard Brooks, (1922, p.47-48) [266] in his description of the features of Antarctica such as ice caps, ice bergs and fauna. The bleakness and the difficulty of life in Antarctica were combined with the child's personal experience of snow turning into ice and the morality of ice snowball throwing. A topophobic attitude towards Antarctica was presented, with links made to the explorers (ibid, 1922, p.47-48).

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[264] Mackinder, H. J. (1906) *Our Own Islands* (1908), *Lands Beyond the Channel* (1910), *Distant Lands; The Nations of the Modern World* (1911), *The Modern British State* (1912)*; Our Island History* (1914)

[265] For example the Geography GCSE specifications presented by Edexcel for teaching from 2016

[266] Brooks, L (1922) in *The New Regional Geographies for Secondary and High Schools* p.47 at https://archive.org/details/regionalgeograp00broo accessed 14/10/2015

Until the 1950s, these interwoven pedagogical threads of place ran through popular textbooks, such as the systematic regional series of Fairgrieve and Young's *Real Geography* (1939-1952) and *The Geography for Schools* by Honeybone. To counteract criticism of the lack of depth in regional texts, case studies were introduced.

3.12.Regional Place Pedagogy and Case Studies

Despite curriculum change, the introduction of the General Certificate of Education at Ordinary and Advanced level in 1950 meant that the regional approach to the teaching of place remained at the core of school Geography. In 1960, the Ministry of Education claimed that it satisfied the

> …need for an understanding of the interaction of all those complex factors which go to make up the personality of a region, an understanding which for many students is the very heart of geography. (Ministry of Education, 1960, p. 38 cited in Boardman and McPartland, 1993 p.85).

The content of the 1991 and 2014 *Geography National Curriculum* specifications revealed the enduring impact of regional geography on the pedagogy of place with specific named countries to study.

3.13.Regional Place Pedagogy and Imperialism

Regional texts often linked the pedagogy of place to the hegemonic aims of imperial Britain and its distant lands of empire, shown by the frequently quoted assertion of James Fairgrieve in *Geography in Schools* that

> …the function of geography is to train future citizens to imagine accurately the condition of the great world stage and so help them to think sanely about political and social problems in the world around (Brooks, L. 1926, p.18).

Ploszajzka (1996a &b), Wright (1996) and Graves (1996 &1975) have identified how the descriptions in these texts often contained deterministic views of place with racial stereotyping of the inhabitants. Traces of this remained in school texts until the late twentieth century and continues in the stereotyping of some current texts.

Colonialism also entered the classroom and the teaching of place through stories of the voyages of discovery, including the place of Antarctica. Direct contact was made with Antarctic explorers. For example, one hundred schools, participated in fund raising for Scott's expedition ponies. Captain Scott sent letters of thanks to the schools and accounts were written for children such as *South with Scott* (Evans 1921). The legacy of British nationalist exploration continues with the links between the British Antarctic Survey staff and school children via films internet sites and webcams, the exhibitions organised by the Royal Geographical Society, the British Antarctic Survey and others.

3.14. The Spatial or Scientific Perspective on Place

Having dominated the geography school curriculum for over one hundred years, the teaching of place as locational knowledge and locale was finally challenged in the 1960s by the behavioural and spatial[267] paradigm shifts in the philosophy and perception of place. The scientific and logic-mathematical approach to the study of

[267] See sections 2.14 & 2.15

place filtered down from academia into schools. At A level (16-19), the core school texts written by academics, including Richard Chorley, Peter Haggett and Kenneth Briggs, introduced statistical techniques such as the nearest neighbour technique and location quotient for the analytical study of place.[268] [269] These, along with textbooks for younger students such as the *Oxford Geography Project* (Rolfe et al. 1974) and the *Harraps Geography Project*, led to a mixed pedagogy mingling some of the new spatial thinking including hypothesis testing alongside the well established regional geography approach to place.

The legacy of this quantitative paradigm shift in the teaching of place is found in the curriculum today in some of the exam board questions that require students to analyse quantitative data (for example the Edexcel GCE sample assessment paper 2007) and in many of the techniques used to collect data on places for fieldwork projects. The logical and scientific method had and has its critics. John Morgan described it as 'the belief that we can search for generalisations and key ideas and discover simple orderly causal processes that represent reality in unproblematic ways.' (2012 p.154). It can mean, as the case study will demonstrate that unless their thinking is challenged students and text book authors adopt a positivistic, objective, attitude to the physical world of the fauna, flora and the non-living elements of landscape. They regard the natural environment as a separate entity to the socio-cultural world. In contrast to this, the benefits of the spatial science approach to study place today are expounded by Johnstone et al (2014) who claim the 'rigorous

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[268] These were *Frontiers in Geographical Teaching* (Chorley and Haggett 1965); *Locational Analysis in Human Geography* (Haggett 1965); and *Models in Geography* (Chorley and Haggett 1967).

[269] Kenneth Briggs (1982) *Human Geography: Concepts and Applications,* London: Hodder and Stoughton

quantitative analysis of patterns, relationships and differences can only be appreciated through the study of aggregates.'[270]

3.15.Place as a Socio-Cultural Construction

Parallel with this spatial turn on the thinking about place, came the humanist perspective of Tuan, (1974, 1979), Relph, (1976), Cobb (1977) and others. This brought a different pedagogical focus with a consideration of the personal meanings of place held by individual students. The marxist perspectives of Harvey (1989 & 1996), Massey (2005) and others who saw places as multiple, social and cultural constructions moved into the school pedagogy of place. Places in the school curriculum were now seen as the 'meeting of local and distant flows or a bundle of trajectories' between people and the natural world at particular point in time and space (Massey 2005 p.119).[271] Humanistic studies such as urban regeneration became part of the teaching of place.

Simultaneously, with the changing philosophical perspectives to place, the Neo-liberal or progressive educationalist approach led to changes in the curriculum of primary and secondary schools.[272] [273] New examinations were introduced at the 14-16

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[270] Johnston, R. Richard Harris, R. Jones, K. Manley,D. Sabel, C. Winnie Wang, W.W. (2014) One step forward but two steps back to the proper appreciation of spatial science, *Dialogues in Human Geography* 2014; 4:59-69 doi:10.1177/2043820614526818 See http://dhg.sagepub.com/content/4/1/59.abstract.html?etoc

[271] See section 2.22

[272] The Plowden Report, of 1967, Children and their Primary Schools encouraged a more child centred approach to learning.

[273] Many secondary modern and grammar schools were merged to become comprehensives.

year old level. [274] [275] Teachers became responsible for the design, provision and assessment of the courses, allowing up to date issues of place to be studied in a thematic manner. The teaching of place was finally freed for now from its regional straight-jacket, with the emphasis on understanding place rather than just knowing about place location and locale. It led to significant changes to GCE geography during the 1970s led by the Schools Council.[276]

3.16. The Issues Based Approach to Place Pedagogy

The curriculum development of the nineteen seventies and eighties promoted a mixture of absolute, liberal, humanist and progressive ideologies. Students were expected to acquire knowledge, develop values and attitudes and gain skills. An inquiry approach, which incorporated logic-mathematical thinking and hypothesis testing was adopted. Place continued to become the focus for the teaching of geographical processes.[277]

An issues based approach was gradually adopted. There was increasing emphasis on the links between people and the environment and a reduced value attached to the factual physical and regional geography of place. More radical socio-cultural perspectives including racism, peace studies, world studies, development studies,

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[274] The General Certificate of Ordinary Education (GCE) was introduced in 1951, replacing the School Certificate for 14-16 year old students and the GCE Advanced Level for 16-18 students.

[275]The Certificate of Secondary Education qualification was introduced in 1963

[276] The Geography for the Young School Leaver Project (1970), Geography 14-18 (1970) and the Schools Council 16-19 Project in Geography in (1976)

[277] See Walford (2001) and Butt (1997) for a detailed commentary on the impact of these initiatives on the Geography curriculum

inequality and environmental conservation became part of the school study of place. All of these pedagogical strands have filtered through to the current curriculum.

3.17.Place Pedagogy and Vocational Courses

Parallel with these developments, as a result of increasing youth unemployment, vocational courses were introduced into schools. [278] In practice, this meant the specifications for the study of distant place for some 14-19 year old students were linked to the vocational knowledge required for employment in the travel and tourism and other industries.[279] All of these were replaced by Cambridge Nationals in 2004 and the International Baccalaureate.

The initial impact of these curriculum changes was reported in the Curriculum Matters Series by Her Majesty's (school) Inspectors. They stated that English secondary geography courses ranged from those which gave prominence to the study of places to those which organised content within a framework of systematic themes. (1986, p.21) Elements of this curriculum change remain in the study of place today with students planning holidays, investigating tourism and case studies about places with extreme sports activities.

The major legacy of these neo-liberalism curriculum initiatives on place was the introduction of an issues based approach to learning rather than place based learning. A continuous advocate for this approach has been David Hicks. In 2014, he posed a

[278] TVEI (1983-1997), BTEC (1984) and GNVQ awards (1992-2007)

[279] Source the researcher's own involvement in creating and teaching vocational qualifications

series of questions for students to use to explore global issues.[280] However, critics believed that the issues based approach to place can often be 'completely disaggregated and decontextualized from the real-life experience' of the students (Leat et al. 2012, p.401). Chet Bowers (2003) criticised how in this issues approach towards place, humans are often seen as being dominant over natural place. Bowers called for an ethic of Eco-justice, to be an integral part of place teaching.

3.18. Place Pedagogy and the Geography National Curriculum

Neo liberal education highlighted the contested polarised views within and about geographical education. Despite 'fifty years of hard campaigning to disestablish Capes and Bays' (Hall, 1990, p.314), those who possessed a cultural restorationist, utilitarian, or neoconservative approach to the geography curriculum finally succeeded in their demand for a return to propositional not procedural knowledge in geography. This led to the production of the 1988 Education Reform Act and the creation of the English National Curriculum.[281]

There was much criticism of this curriculum. Stephen Ball saw these educational 'reforms' as a return to the curriculum of the dead[282] (1994, p.28). The geography curriculum, especially the teaching of place, was content based. This was reflected in attainment target two:-the knowledge and understanding of places. At levels 3-4

[280] His questions were What do we need to know to make sense of this issue? What are some of the hopes and concerns we have in relation to this issue? What are the choices that need to be made in helping resolve this issue? What sort of action for change might we and others want to be involved in?

[281] See Rex Walford, The Great Debate and 1988 in Williams, M, Tilbury,D. *Teaching and Learning Geography* p.15-24.

[282] See Graham Butt's (1996) PhD thesis for the background to this curriculum, Morgan (2009), Lambert and Morgan (2010), and Winter (2009a, 2011).

students were expected to name, locate, describe and compare the geographical features and human activity in places (DES 1991, p.8). Ball condemned this *Geography National Curriculum* (GNC) for

> …its undertones of assimilation, nationalism and consensus around the regressive establishment of fictional past glories. Restorationist, National Curriculum Geography isolates students in time and space (1994, p. 37).

In addition to this scathing critique, Eleanor Rawling[283] (1992, 2001, 2003) in her reviews of the first geography curriculum pointed out 'there was an emphasis on factual and locational knowledge in stark contrast to the then post modernist characteristics of the university discipline' (1992 p.9). Firth has discussed in depth how this programme of study displayed a naive realist epistemology (2011, p.22 and p.153). Despite modifications made to the specifications in 1995 and 2000 and a move towards conceptual understanding of place, the prescriptive nature of the GNC framework of 1991 continued to limit curriculum change and to narrow student experiences.

The initial impact was to reduce the study of place to a restricted number of locales. The assessed, content rich curriculum meant there was less opportunity for affective learning (values, beliefs attitudes and emotions) and critical reflection to enable students to adopt a phenomenological approach and gain a meaningful empathetic insider's sense of place (Tuan, 1974 / 1979 and Relph, 1976).

The introduction of the Geography GCSE in 1986 and the GNC led to the production of new textbooks. The most popular were those of David Waugh and Tony

[283] She was a member of the GNC working party.

Bushell, including *The World*, *Places* and the *Key Geography* series. The first edition of *Key Geography* books (1991) these texts, restricted the diversity of world places to case studies of Japan, Italy, Brazil, Kenya, USA and the UK (the core countries in the GNC requirements). [284] There are several critiques of these books including Walford (2001), Marsden (2001), Graves (2001) and Lambert (1997). [285] [286] The early editions contained stereotypical and misleading representations of places.[287] [288]

The prescriptive nature of this curriculum and 16-19 specifications including the teaching of place was eventually challenged by educationalists, politicians and the declining number of students opting to study the subject.

3.19. The Competences Approach to Place Pedagogy

Teachers were encouraged to take advantage of the revisions of the GNC in 2000 and 2004 [289] to develop different approaches to the teaching of place, assisted by professional development projects such as Geovisions.[290] The *Teaching Thinking Project (*Leat 2000) and publications including *Thinking Through Geography* (Leat,

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[284] The books were based on the authors' own teaching materials and experiences. Source:-the researcher's professional contact with one of the authors.

[285] An author of a series of texts for Geography Key Stage Three

[286] Margaret Robert's, research in schools illustrated how in the first series these texts presented 'concepts and explanations as facts to be learned rather than arising as a result of the interpretation of data.' (1995, p.143)

[287] For example a cropped photograph of a Masai undertaking beadwork with the female tourist taking the staged photograph removed. The image was from *Choices in Development: The Experience of Tanzania and Kenya,* Margaret Murray Ikon Productions date circa 1970s

[288] Winter (2007b) analysed text on Kenyan culture and society to reveal the hidden negative comments

[289] http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/QCA-04-1374.pdf

290 Set up in 1998 by the Development Education Centre Birmingham

1998), *More Thinking Through Geography* (Nichols & Kinnement 2001) and the *KS3 Thinking Skills Strategy* encouraged teachers to adopt 'powerful, pedagogical strategies,' (Leat, 2002). These strategies could be used to develop skills and contest different representations of place and they became an essential part of the pedagogy of place for most teachers. This meant that places, including Antarctica, became mere backdrops for the skills based curriculum and themed study of issues such as climate change and tourism at all levels of the secondary curriculum. This thesis is not the place to examine the extensive literature in the pedagogic debate about the merits of the knowledge, competences or conceptual curricula. Critics of the competence approach include David Lambert, the former chief executive of the Geographical Association.[291]

3.20. The Conceptual Approach to Place Pedagogy

The GNC of 2008[292] promoted the concept base curriculum, flexibility in place study and creativity. It required that, when investigating a place, pupils should consider 'where it is? what it is like? how it became like this? and how it might change?'The intention in promoting study of the big picture was to revitalise the geography curriculum but it was still possible for this to be interpreted in a descriptive, factual way as shown by the Ofsted reports on Geography (2005, 2008,

[291] David Lambert (2011)'teachers have turned way from knowledge and in my view have been encouraged to over invest energy in pedagogy and almost make a fetish out of learning' p.245

[292] http://webarchive.nationalarchives.gov.uk/20130904095037/https://www.education.gov.uk/schools/teachingandlearning/curriculum/primary/b00199002/geography

Section 49 and 2011).[293]

There are criticisms of the concept based curriculum. Table 3.1 below illustrates how different concepts are seen as significant by different authors and nations.

Table 3.1:-Significant Concepts in Geography

Place, space, scale, interdependence, physical and human processes, environmental interaction and sustainable development, cultural understanding and diversity (UK 2008 Key Stage 3 Curriculum QCA 2007)
Space, time, place, scale, social formations, physical systems, landscape and environment (Holloway et al 2003)
Place, space, time, change, diversity, perception and representation and interaction (Taylor, 2003)
Space and place, scale and connection, proximity and distance, relational thinking (Jackson 2006 p. 199)
Space, place, scale interdependence and development, cultural understanding and diversity, environment , sustainability and futures (Lambert and Morgan. 2010)
Natural and cultural environments, perspectives, processes patterns, interaction, change, sustainability, space (New Zealand, Ministry of Education, 2014)
Place, space, environment, interconnection, sustainability, scale and change. (The Australian Curriculum, Assessment and Reporting Authority 2014)
Importance, evidence and interpretation, patterns and trends, Interactions and associations, sense of place and geographical value judgments (Royal Canadian Geographical Society 2014)

This varied selection of concepts highlights the tensions in the pedagogy of place and how political, academic and personal perspectives influence the teaching of place.The identified concepts are not neutral and static.[294] For students to gain a deep understanding of place the boundaries between concepts need to be fluid, porous and open to interpretation across different scales from local to global space. John Morgan (2008a, 2008b) and Christine Winter (2009 & 2012) critically discussed how the conceptual national curriculum unintentionally created another rigid place framework.

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293 'Pupils were denied crucial elements of a broad and balanced education for life. These pupils had a narrow conception of the world and lacked knowledge of both physical and human environments. They also missed out on fieldwork and the power of learning directly in particular places and environments. They were denied the opportunity to think about change in the contemporary world and how to imagine alternative futures' (Ofsted 2011 section 50, p.26).

294 See Winter (2011) for a full discussion.

Winter metaphorically described the effect of the concept based curriculum as one of

> …catching or netting traces of geographical ideas as if they are butterflies and trapping them in jam jars of seemingly fixed conceptual compartments can lead to a kind of sclerosis in the structures that appear to underpin the subject (2009 p.59).

Innovation in the curriculum was restricted. The problems of a concept based curriculum were recognised in 1994 in the USA by The National Council for Geographic Education and the Association of American Geographers. They changed their curriculum from the 5 concepts or 'themes' of location, place, human environment interaction, movement and region to 18 geographic standards and skills.[295] The research presented in this thesis suggests a balance between the two is needed.

The concept based 2008 GNC curriculum required student understanding of 'the dynamic interrelationship between the physical and human worlds.' However, in this specification the socio cultural perspective of place was elevated over the physical 'reality' of place. This was displayed by the ecocentric, value laden questions the GNC suggested for consideration under the themes of environmental change and sustainable development. These were 'What do I and other people, think about this place ?' 'What do I like about it?' 'What could I do to make this place better?' (QCA 2007b p.7).

Teachers Rebecca Aston and Simon Renshaw, reflecting back on a scheme of work they designed using an issues based approach to organise the geographical content for the 2008 GNC, decided it 'came in some instances 'at the expense of developing a

[295] The second edition has the edition of perspectives.

deep understanding of place' (2014, p.65).

3.21.Innovations in Concept Based Place Pedagogy

Despite the limitations of this GNC, teachers revitalised and energised their curricula and the teaching of place. Some merged the boundaries of the separate discipline subjects, creating the opportunity for a more integrated approach to study place and other concepts. Others made the study of place more topical and relevant to their students by taking advantage of projects, publications and new teaching materials.[296] These displayed a phenomenological, humanistic approach towards place.

The Pilot Geography GCSE was a QCA initiative in 2003. With this specification and the adoption of a thematic approach, the bonds of place were again untied from the prescriptive, dated topics at the 14-16 level. It adopted the concept based inquiry approach and built on the legacy of the Schools Council Projects of the 1980s. This allowed students to make connections across geographic scales from local to global place.[297] Threaded through the designated modules were the five concepts of globalisation-sustainability, interdependence, futures and uneven development of all global places. The project received positive reports in the geographical education world.[298] This included teachers, students and the Ofsted report of 2005. Wood (2011)

[296] These were led by the Geographical Association and the Royal Geographical Society These included Innovating with Geography, Margaret Roberts(2003) Learning through Enquiry and the GA / RGS Valuing Places project.

[297] The three core modules were, My Place, Extreme Climates and People as Consumers plus two optional modules from nine.

[298] See the evaluation report of Wood (2006) and chapters in Butt, (2013) Morgan and Lambert (2010) Lambert and Jones (2013).

summarised the evaluations undertaken of the teachers and schools involved in the project and those involved saw it as successful in deepening learning and personalising the curriculum. It had a wider impact through the CPD work of the GA and the RGS and its related reports informed the 14-19 Geography review in 2005/6. It was then adopted and managed by the Oxford, Cambridge and RCA examination awarding board. There are critics of the emphasis on personalised learning and problem solving over disciplinary knowledge including Young (2009) and Ross (2008). The strategies for the module, *Extreme Climates*, suggested combining Antarctica, the Arctic and the Himalayas, an approach that some of the older students in the research case study of this thesis had followed and which chapter 6 will reveal created place conflation.

The Young People's Geographies Project (YPG) (2006-2011)[299] ran in a small number of schools. The topics studied mainly related to local place and its global connections were arrived at through pupil, teacher and academic discussions. The project has been documented by Hopwood (2006), Firth and Biddulph (2007), Griffiths (2009) and Wood (2011).[300] These reported that in the participant schools there was an opening up of the curriculum, an-introduction of the voice of the student into curriculum design and increased student engagement and attainment. YPG highlighted the need for relevance in student learning about place.

Questions have been raised about such curriculum initiatives. Can students construct the geography of a distant place from their own lived experience? Can

[299] A combination of sixteen schools and a small number of their teachers and pupils working together with academics.

[300] All from authors involved with the project.

students question their own views of the world? Michael Young claimed that in most cases learners 'will lack the prior knowledge to make such choices' (2009, p.14). Employing student voice to study place was successful in YPG but this was a supported project. If the project continues within a school or if resource materials are adopted by other schools, there is the possibility that unless the principle of student voice is adhered to some students will have the voice of other students imposed on their own learning. Simon Catling has reiterated in many papers the importance of using student lived experience to connect with the formal curriculum but he has also raised the concern that children's geographies might 'emerge as the object of the curriculum, rather than contributing to it' (2011, p.24). Such a development would limit not extend children's learning of distant places.

In addition to this constructivist approach to place increasingly in the late twentieth century within the whole school and the geography curriculum, English students were asked to consider their own values and attitudes and to develop cognitive skills of values and attitudes towards local and global issues such as climate change, sustainability and environment conservation (Fiens,1996).

3.22.Eco-justice and Place

Another critic of the constructivist approach to place pedagogy, Chet Bowers (2003/2006) developed the philosophy of Eco-justice to encourage a more reflexive approach to the learning of place. He claimed that a critical pedagogy of place needs to examine 'the place-specific nexus between environment, culture and education informed by an ethic of Eco-justice' (Gruenewald, 2003, p. 10). In other words, he claimed students should develop an ethical consideration for the protection and

enhancement of the natural systems of place and examine the impact of culture and social processes especially consumerism on these places. It is a philosophical stance that is counter to the modernist idea of place ‘development’ found in most late twentieth century geography text books. He states it is an approach that asks teachers to change their ‘classrooms from sites of indoctrination into the culture of consumerism and environmental exploitation into sites for learning how to live in ways that contribute to a sustainable future’ (ibid 2006, p.103). This perspective has been taken up in relation to local place based education. The research will seek to ascertain if it needs to be applied to the unique environmental issues that are impacting upon Antarctica.

3.23.Controversial Issues and the Pedagogy of Place

Many believe a consideration of controversial issues and values and attitudes should be an integral part of the study of place. Morgan and Lambert (2005) suggested that when examining controversial issues teachers need to ensure that they generate a 'culture of argument' and 'confident uncertainty’ that leads learners onto further enquiry about issues. Hopwood (2009) emphasised the need for students to develop multiple rather than binary perspectives to issues. Reflecting upon his research interviews with secondary students, he stressed that teachers should constantly ascertain and work with the students’ existing and emerging complex ideas and opinions on controversial issues. His evidence suggested that pupils ‘may interpret experiences in relation to controversial issues in unexpected and often hidden ways’(2009 p.599).

One of the main challengers to this approach has been Alex Standish (2003 and 2009). He has outlined how he believed the curricula in North America and England were used to promote the belief that environmental problems can be reduced if students adjust their individual behaviours,for example individual energy and water use and to change attitudes to the conservation of resources and nature (p.107)[301]. Standish labelled this approach to teaching as moralising to young people through contemporary diktats (2007).

Most classroom teachers would dispute Standish's claim that they seek to promote particular cultural values including those about place. Teachers often try to maintain a 'neutral' attitude when teaching controversial issues. However, as Cotton identified in her research and analysis of interactions within three classrooms the teacher's intentions may not always match practice because 'the influence of their own attitudes was greater than they either intended or, in all probability, realised.' (2006 p.1) Standish's views contrast with those who advocate a critical pedagogy of place and global learning. They view all education as political and believe that learners should be engaged in what Freire called conscientizacao or critical consciousness (1972) within learning experiences.

The debate about 'greenwashing' and moralising highlighted the tensions over the teaching of geography and place in English classrooms between those who see knowledge as objective, neutral and uncontested and others such as, Bowers (2004), and Lambert, Morgan & Swift (2004, p.9)[302] who view knowledge as transitory and

[301] His research of North American and English texts and curricula and views has created a lot of debate about knowledge and values and attitudes in the curriculum

[302] Lambert has become a proponent for powerful knowledge (2011) in the curriculum

value ladened.

3.24.A Balanced Pedagogy of Place

Ofsted (2011) in their geography report, focused attention on contested curriculum pedagogies, especially the domination of socio cultural elements of place over physical place and the relevance and topicality of place teaching.[303] The Geographical Association in devising their manifesto, *A Different View*, sought a wide range of opinions about curriculum content.[304] This included a Mori Poll (2009) of 598 11-14 students. It asked students to identify the global and local issues they had been taught and others they thought should be studied in the school curriculum. Mori's findings revealed that the young people wished to learn about how the world they live in may change in the future (59%), changes to the world around them and how they occur (56%), where resources, such as food, energy and water come from (52%), people, societies and cultures in other parts of the world (49%).[305]

Many innovative teaching materials and strategies were produced by the GA for teaching about place pedagogy but the polarised English geography ontological debates continued. A shift in perspective can be seen in the Geographical Association's document *Thinking Geographically* (2012). This stated that the three main organising concepts of geography are place, space and environment (living and

303 The North American teaching associations revised their approach to the place curriculum.The National Council for Geographic Education and the Association of American Geographers believe a fully developed geographic perspective involves an integration of both spatial and ecological points of view. See http://education.nationalgeographic.com/education/national-geography-standards/geographic-perspectives/?ar_a=2 accessed 7/06/2014

304 http://www.geography.org.uk/resources/adifferentview accessed24/01/2015

305 http://www.geography.org.uk/resources/adifferentview/worldissuessurvey/accessed 24/01/2015

non-living surroundings). This, together with the inclusion of earth sciences in the science and geography curriculum in the 2014 *Geography National Curriculum* demonstrated that natural place had again been accepted as more than just the decor for a thematic curriculum.

Political input into pedagogy in England from 2010 onwards led to revisions and more centralisation of the curriculum. The ghosts of some of the previous strategies adopted for place pedagogy can be seen throughout the 2014 Geography programme of study.[306] [307] It again ignores the advice of Catling of the need for an affective pedagogy of place (2003, 2005 & 2011) because the emphasis is on locational place knowledge. It states that for the place of Antarctica, in geography at key stage one students should learn the location of the continent and about cold weather at the poles.

For key stage 2, there is a return to the 1905 curriculum. [308]The required study is about climate zones, biomes and vegetation belts and lines of latitude. Teachers could select Antarctica as the locale to study the proscribed thematic aspects of human and physical geography at key stage 3. This could include resource use, glaciation and the change in climate from the Ice Age to the present. In the national curriculum for science across the key stages 1-4, the wildlife for Antarctica could be used as exemplars for animal life cycles, adaptation, food chains and endangered habitats and species, the consumption of fossil fuels and the impact of climate.[309]

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[306] https://www.gov.uk/government/publications/national-curriculum-in-england-geography-programmes-of-study/national-curriculum-in-england-geography-programmes-of-study

[307] https://www.gov.uk/government/publications/national-curriculum-in-england-geography-programmes-of-study/national-curriculum-in-england-geography-programmes-of-study

[308] See section 3.12

[309] https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study accessed 28/10/2015

The DfE requirements for geography GCSE qualifications to be taught in England and Wales in 2016 have tried to balance the study of physical and human geography content.It requires a knowledge based approach to learning rather than an issues approach. Teachers can select from a specification with a thematic approach or an enquiry approach. The study of place is extended beyond locational knowledge to include the 'processes and inter relationships' within and between places` (Rawling 2015 p.167). All of these syllabuses could provide the potential to incorporate teaching about the place of Antarctica through the study of geomorphic processes and landscape, changing weather and climate, global ecosystems and biodiversity and resources and their management (Digsby 2015, p.104). There is no longer any study of environmental issues in the citizenship curriculum.

> Teachers and examination bodies will need to take into account student progression but it appears there will be many opportunities for students to study Antarctica at the 16-19 level place as local in physical geography, as a changing place and especially as a place to study the governance of the global commons.

Overall, these new curriculum specifications reflect the perspective that the purpose of schools is 'to enable young people to acquire the knowledge that for most of them cannot be acquired at home or in the community' (Young, 2009, p.13). However they provide an opportunity for teachers to avoid the negative aspects and to blend together the many positive strands of the teaching of place identified in this chapter through combining 'Powerful Knowledge' (Young, 1971), including that stated in the new curriculum specifications and 'Powerful Pedagogical Strategies,' (PPS) (Leat, 2002). The case study research in this thesis will suggest a need for Powerful Reflective Activities combined with disciplinary knowledge and

skills is necessary to enable students to understand distant places.

3.25.Diverse Locale and Place Pedagogy

Despite, the many curriculum initiatives and debates, the lack of topicality and the limited study of places studied in the Geography curriculum have persisted in many English classrooms. David Balderstone raised key questions about these issues that can still be applied to the restructured 2014 English school curriculum. He asked 'Why is it that young people tend not to study the places where there are many contemporary issues being played out today?' and 'Why do specific areas of the world seem to be missing from school geography' (2006, p.23)?

Balderstone suggested that restricted study of place arose because of the difficulty teachers had in finding information about some regions especially in geographical teaching resources. It is a problem that has persisted despite access to electronic materials. When material is available, it may be out of date, restricted to a two page spread or use repetitive knowledge and images. With the continued addition of information websites can be difficult to navigate. This was shown in 2012 by the difficulties the case study students faced. Without expert knowledge of a place it may be difficult for the teacher to verify the 'facts' and perspectives presented. The teachers and students may also lack awareness of the cultural legacies and metaphors that lay within the narrative and visual images. Working together, combined with critical reflection on place materials including Antarctica could enable both teachers

and students to co-construct a deep understanding of places using knowledge, skills and critical analysis.

3.26. Place Enculturation

Alongside the formal and informal sources, teacher and student understanding of place is affected by the process of enculturation.[310] It is 'a powerful influence on knowledge, beliefs and feelings towards the inhabitants of nations and countries construed as geographical territories' (Barrett, 2007 p.61). The earliest research into this was a small study with Swiss children undertaken by Piaget in (1928) which was followed up in 1951 by Piaget and Wiel.[311] Gould and White's (1974/1986) work highlighted that Swedish, British and other children have an increasing knowledge of global places which is linked to age and personal experience.

Jahoda, in 1963-1964, examined whether children aged 6 to 11 years old understood if they were Glaswegian, Scottish or British using cut out shapes. The sequential categorisation of responses revealed that most of the younger children possessed a naive understanding of nested geographic places in their placement of the shapes but a better verbal understanding. Many of the 11 year olds knew the correct place hierarchy and their own nationality.[312]

The research of Harwood and McShane (1996) assessed the understanding of

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[310] See Martyn Barrett (2007) for a detailed discussion of enculturation and a description of his and others research on this issue

[311] The researchers questioned a small sample of children about their sense of identity as Genovese or Swiss citizens.

[312] This study was undertaken prior to the formation of the Scottish Parliament in 1999.

mixed age primary students of the nested place relationship between their homes in Nuneaton and England, the British Isles, and Europe, using map shading, oral interview and jigsaw arrangements. They believed their results indicated that young children's understanding of relational places may have improved since Jahoda's study, because of greater travel experience and more teaching about locational place due to the national curriculum.[313] Although dated, these studies advocate a need for teachers to consider existing encultured perceptions and the experiences of the students when teaching about place.

Other studies on enculturation set out to assess students attitudes to people of different nationalities, especially Barrett's (1992, 1996, 1997, 2003, 2007 and 2011) numerous individual and joint research studies with English children, different groups of European children or children in conflict areas. He recognised that affective responses towards foreign peoples can be established prior to the acquisition of factual information and that there was an increasing recognition of difference in national groups attributes. These research studies have emphasised the importance of the study of place in reducing children's stereo-typical ideas of people of distant places. Barrett's card survey techniques and use of the idea of national group, out groups and in groups could be adopted by teachers to determine student preconceptions of other nationalities.

Da Cunha, A. and Ferreira M. M. (2010) used questionnaires to examine student perceptions of the similarities, difference and knowledge of the diverse cultures around the Mediterranean. They concluded that place pedagogy should require

[313] Their findings might have been due to the difference in the research technique.

students to reflect upon their life and culture through the perspective of others. Examples of research on students' knowledge of place, possibly conducted for political reasons are the three large empirical studies that have been conducted on students' civic knowledge and knowledge and perceptions of the European Union and their sense of belonging to Europe (International Association for the Evaluation of Educational Achievement). These studies reveal that a sense of personal space and other nations is linked to experience, education and cultural attitudes.

3.27. Teaching and the Enculturation of Global Place

Taylor adopted a different research approach to understand the impact of teaching on student understanding of distant place. She explored the impact of a teacher led sequence of lessons over ten weeks and a day of activities about cultural Japan on student sense of place.[314] This took place with one class of year nine English students aged 13-14 years. The lessons emphasised the diversity within Japan's culture (Taylor, 2014. p.293). The students' stereotypical views were challenged through the use of technology which allowed contact with students in Japan,[315] perusal of multiple images and varied teaching and learning strategies. Taylor (2010 & 2014) stated that the lessons had enabled the English students to produce multiple representations of Japan and a greater awareness of their cultural similarities and diversities. For some children, it reduced their conceptual conflation of China with Japan. This study highlighted how the insider knowledge of Japan held by the class teacher enabled the

[314] Extensive observation by the researcher of teaching in secondary schools indicates this length of time to study a place is unusual.

[315] A talk board exchange

development of student understanding.

Taylor's findings matched those of Azano (2011). In her research in one American classroom, she reflected on how the key role of the teacher's personal sense of place facilitated discussion with students of their personal geographies. The teacher used (local) place-based content to engage the students and make connections to places outside their own experience. Their research illustrated the need for flexibility in curricula specifications to enable teachers to utilise their own personal place knowledge and expertise.

Picton (2008) examined children's perceptions and understanding of the place of Brazil. His work revealed a change in thinking from essentialist stereotypes[316] to binary oppositions in their perceptions and representations of the country after a course of study rather than holistic place knowledge. Similarly Hong and Halvorsen's research with six US geography and global studies teachers concluded that the curriculum was reinforcing students' existing perceptions of Asia. (2010: p.386)

Taylor, Picton, and Hong & Halvorsen's place research has emphasised the need for the continued discussion and deconstruction of the binary images of place created in student's minds through enculturation in order to develop their thinking towards multiple images of place and 'a more nuanced understanding of diversity, continuity and continuum' within that place (Picton, 2008, p.244).

[316]'Stereotypes usually take the form of generalisations concerning the members of a particular national group'….Unlike certain other generalizations, however, stereotypes are based not on an inductive collection of data, but on hearsay, rumour, anecdotes in short, on evidence which is insufficient to justify the generalization (Klineberg 1951 p.505).

3.28.A Sense of Global Place and School Partnerships

Mackintosh (2007), Martin (2007), Disney (2005, 2008) and others have considered the role of school partnerships in place pedagogy and enculturation. They identified a tendency for reinforcement of 'the other' (Said 1985), the lack of challenge to over generalised views of places and people, a politically uncritical view of economic inequality and the need for equal educational benefits for all the students involved in the partnership. Disney in her thought provoking analysis of school partnerships, explored 'whether it was another form of colonialism in which British schools plundered the poorer parts of the world to find the materials they needed to resource their curriculum' (2008, p.4). She identified how school linking can be undertaken without reinforcing the stereotypical attitudes of English school students, teachers and parents towards distant place (ibid 2008 p.134).

The DfID in 2007 issued best practice guidelines for global partnership, created professional development opportunities and helped to arrange the reciprocal exchange of teachers to ensure equal partnerships in global linking. Martin (2007) has shown how teacher exchange can be transformational for the staff involved and how it creates 'powerful 'displacement spaces' that allow for teacher reflection. The work of Disney, Taylor and Azano, have revealed that expert knowledge of a place enabled teachers to create powerful learning opportunities for their students about place. This demonstrates the need for flexibility in the curriculum rather than a prescriptive list of places to be studied.

With no indigenous population, this partnership linking is not available for the study of the place of Antarctica. A small number of teachers are able to visit

Antarctica and share their experiences. Students are able to use web cams and skype for direct contact with scientific researchers, maintenance and building workers, seconded teachers, authors artists and explorers in Antarctica.[317]

3.29.Global Place and Experiential Learning

From the beginning of compulsory education in England, experiential learning in the home or local area was part of the pedagogy of local place. Teacher educators such as Charlotte Mason and James Fairgrieve promoted active teaching or fieldwork in the local area and practical work with models of places. The aim of this approach was and is for to students to gain an appreciation of experiences and understanding of their local place or, as Casey eloquently phrased it ‘we are, ‘placelings’ and to live is to live locally and to know is first of all is to know the places one is in’ (1996, p18). Another aim of this pedagogical approach is that students will then transfer and contrast their local sense of place with distant places. However as noted earlier, as Taylor, Picton, and Hong & Halvorsen have identified, it can lead to binary perspectives on place. The experiential approach to place has continued in varying degrees and forms throughout the various curriculum changes outlined in this chapter,

[317] Education through Expeditions ‘ Antarctic Research Team' is Plymouth based group that takes polar research activities into schools and online see http://www.eteteachers.org accessed 18/06/2014 and McMurdo station webs cams provided by the United States Antarctic programme http://www.usap.gov/videoclipsandmaps/mcmWebCam.cfm accessed 15/10/2015

including outdoor learning, fieldwork [318] [319] and place based education [320] in individual classrooms and schools.

3.30. Social Realism and a Sense of Place

Place based education has been clearly advocated by David Gruenewald (now Greenwood), who adopted a critical realist perspective to place. This regards 'the world as an objective reality, independent of oneself, capable of being known' (Freire 1973 p.3). It has embraced the phenomenological ideas of Merleau-Ponty (1962), Heidegger (1971, 1962), Ingold (2000), Gibson (1950) and Wylie (2007, 2002) that humans are embodied within the world. This perspective that we are part of the environment of place not separate observers of place has been incorporated into the ontology of social realism. Social realists believe that the natural world exists independently but it is influenced and changed by humans. This natural world can be surveyed and analysed and questioned but different socio-cultural constructions of this objective knowledge will be held by individuals and different cultures. [321] [322]

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[318] Kent and Foskett (2002) discussed how experiential fieldwork can be used to create various learning opportunities in both local and distant place.

[319] Recently in English classrooms students' personal geographies and skills have been incorporated into formal fieldwork learning. Students can use their phones and bio mapping to create emotional maps of place that they have experienced as demonstrated by the sensory journeys project with the artist Christian Nold in four schools in Bristol in 2009.

[320] The place based education approach to place developed from the writings of Roy Bhaskar (1975 2008).

[321] David Demeritt (2002) debated the social construction of nature. Roger Firth (2007) has discussed social realism in relation to the different ontological perspectives of geography. See sections 2.39 and 2.40 for a discussion of 'nature'

[322] See John Searle (1995) for a philosophical view on social realism

3.31. The Global Dimension and Place Pedagogy

Bowers, (2004), Huckle (1996), Jackson (1989), Morgan, (2005), Bourne (2012), Andreotti (2006) and Gerber (2000) have discussed the importance of the teaching of place in assisting students to gain a global understanding of processes, issues and interdependence in terms of the ecological and socio-economic and physical world. Gerber (1996 & 2000), Gruenewald (2003) and Smith (2002) have suggested that to achieve this any teaching about local and distant place should 'ground learning in local phenomena and student's lived experience.' Smith (2002, p. 586), noted that it needs to move outwards from the micro to the macro scale or global place scale. This global learning may occur within separate subject disciplines. However its proponents believe this approach is more effective if it is permeated through the whole school curriculum. A theme which 'connects the local to the global and advocates that people throughout the world are agents in interconnected, sustainable and thoughtful living' (Hunt 2012, 2.1).[323] In addition, as this literature review and case study indicate there is a need to consider the different cultural perspectives towards global places. Numerous terms have been used to describe student learning about global places including global citizenship and global learning.

A recent English teaching initiative based on place is that of *Global Learning*.[324] This seeks to provide students with progressive values and attitudes towards places, running in parallel with the English National Curriculum. One of its aims is to

[323] It is different to the study of globalisation an element of the study of the global connections of places

[324].http://globaldimension.org.uk/glp accessed 27/06/2014

encourage every citizen to take responsibility for the impact they have on global places. According to Massey, to achieve this teachers and students need to consider the trans-planetary processes and issues such as trade, migration and climate change that impact on particular places including Antarctica (2014, p.36). This curriculum approach has devolved from the previously discussed issues curriculum of the 1970s, especially Development Education. It advocates using resources and visiting speakers from non governmental organisations. Global learning now forms the centre of the curriculum in some primary schools with teachers working in partnership clusters to develop student knowledge, skills and understanding of global places.

Conclusion

This chapter has unravelled the legacy of the individual threads influencing the development of the teaching of the knowledge of distant place in English geography and cross curricula classrooms today.[325] Through this examination of the research and curriculum change, the contested pedagogies of place have been identified. It has explored how strategies to develop student understanding of locale, location and a sense of place have evolved over time.[326] This chapter has only briefly considered the different ontological and epistemological stances on place pedagogy because of space constraints. These have been examined in depth by Castree (2005), Bowers (2004), Stables, (2004) and Firth (2007 and 2011).

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[325] It has not considered the role of place in other disciplines although some of the literature was researched.

[326] Agnew, J. (1987)

Whether a place based, issues based or systematic approach is adopted, an educated understanding of place is much more than the memorisation of facts to meet standards and pass examinations. Place knowledge is essential but the learning experience needs to create lifelong skills for critical thinking on the multiple perspectives of place. As Cobb identified, to understand place critically and holistically is both ‘a technique and an essential instrument’ for the work of the poet, the artist or the creative thinker (1977 p.27). However, holistic understanding of global place is important for every citizen. The research results for the research case study of Antarctica in chapter 6 provide evidence that students can be moved from their naive, realist perceptions of global places and to critically view the world as an interdependent, connected planet.

Chapter4:-Research Methodology

> *It is probably now well accepted, though it is still important to argue, that a lot of our "geography" is in the mind. That is to say we carry around with us mental images of the world, of the country in which we live*
> Source Massey, D. (2006) in 'The geographical mind' in Balderstone, D. (eds.) Secondary Geography Handbook, Sheffield: Geographical Association

4.Methodology

4.1.Rationale:-Grounded Theory?

In the research proposal for this thesis, the stated intention was to employ grounded theory and to begin with the voices of the students in the school setting. However, with extensive experience in secondary and higher education, the researcher was not a tabula rasa and already possessed a Vygotskian perspective on the teaching and learning of distant places.[327] [328] This researcher experience, as Glaser and Strauss (the original proponents of grounded theory) contended, was to prove advantageous to the research process because it allowed the researcher to 'see relevant data and abstract significant categories' within the research materials (1967, p.46). Never-the-less Glaser and Strauss (1967) and Strauss and Corbin (1990) stated that if you begin with a list of already identified variables (categories), they may and are indeed very likely to get in the way of discovery (1990, p.49). The original grounded theory was devised before the prevalence of post structuralist thinking. Many, such as Mason (2002 p.181), Dey (2007) and even Strauss and Corbin (1998) have criticised the idea

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[327] This was based on a cognitive constructivist approach to learning 'that students construct their own meaning for the knowledge they acquire. They develop understanding as new elements are acquired and are linked with the existing patterns of associations between elements of knowledge' (White and Gunstone, 1992 p.13)

[328] Many studies especially those by Rosalind Driver discussing science concepts have demonstrated that students posses prior knowledge or beliefs about the phenomena and concepts to be taught. which may be in contrast to the established concepts See Driver 1985 and Driver, Duit & Treagust (2003)

that the theory should be analysed after the research. Bryant and Charmaz (2007), and Lempert (2007) discussed how the literature review provides the researcher with the current parameters to the academic conversation in the research field. In practice, researching the educational and psychological literature broadened the researcher's ideas on perception, cognition and place. There were also institutional constraints on conducting the research for this study before the literature review. The review was therefore conducted before the classroom research.

4.2.Dialectic Logic

To begin the research, dialectical logic was applied to the literature. Dialectics is a general theory of the nature of reality which explores objects and events in the 'real world' and their subjective representation (Winter,1996, p.20).[329]' Employing dialectical logic was, as Bailey, White and Pain (1990) and (Webb, 1996, p.137). identified, an effective strategy. It allowed the competing philosophical and psychological theories on place construction and the historical social and cultural perspectives on Antarctica to be critically evaluated. It raised radical questions. These enabled the researcher to take a 'critical stance of the extant theories' (Bryant and Charmaz, 2007, p.20). It also exposed the then epistemological views of the researcher (a human geographer and psychologist) about place theory. In her personal 'discovery' of individual places and in teaching about distant places, she had

[329] Engels described dialectics as 'The law of the transformation of quantity into quality and vice versa; The law of the interpenetration of opposites;The law of the negation.' Engles, F. (1925) Dialectics of nature accessed at http://www.marxists.org/archive/marx/works/1883/don/index.htm 17/09/2013

continually crossed the bridge over the place dichotomy divide, using both realist[330] [331] and the social constructivist perspectives of the world.[332] The researcher needed to consider other approaches to place construction such as contemporary philosophical realism, social realism[333] or post structuralism and scientific realism.[334] Preston succinctly summarised the core of the current thinking about place when he wrote

> …Thought, knowledge and belief are not products of mind alone but expressions of its integration and participation with the physical world that lies around it. Recognition of this cooperative relationship brings human knowledge firmly back down to earth (2003, p.2).

4.3.Researching the Literature

The research began with a critical review of the philosophical debate on place construction and the perception of place. This identified the dominant discourses of place over time in the western world. This synthesis was interwoven with an investigation of the historical, social, cultural and scientific representations of Antarctica. The data collection included visits to centennial exhibitions linked to polar expeditions to the South Pole at Dundee Discovery Point, The Royal Geographical

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[330] This is the doctrine that 'matter as the object of perception has real existence and is neither reducible to universal mind or spirit nor dependent on a perceiving agent.' http://oxforddictionaries.com/definition/english/realism accessed 25/01/2016

[331] Entity realism holds that most of the entities referred to in scientific theories are actual inhabitants of an external, mind-independent reality. Anjan Chakravartty *Semi -realism* Stud. Hist. Phil. Sci., .Vol. 29, No. 3, p.391–408, 1998 Elsevier Science

[332] 'Reality exists independently of people, but cannot be understood separately from the discursive practices that guide our representations' (Hajer 1995 cited in Brown 2004).

[333] Social realism stresses 'the subjective experience of individuals in the creation of the social world' (Cohen, Mannion and Morrison (2007 p.8). However 'this social reality presupposes a reality independent of all social constructions because there has to be something for the construction to be constructed out of' (Searle, 1995 p.90).

[334] Scientific realism is the view that we ought to believe in the unobservable entities posited by our most successful scientific theories Ladyman, James, "Structural Realism," The Stanford Encyclopaedia of Philosophy (summer 2013 Edition), Edward N. Zalta (ed.), at http://plato.stanford.edu/archives/sum2013/entries/structural-realism/>accessed 25/01/2016

Society London and The Museum of Natural History in London.

The review of the literature of place brought an original holistic lens through which to view the representations and discourse on the distant place of the continent of Antarctica. The use of place to consider Antarctic representations adopted by the researcher is different from the cultural, historical and literary approaches of other authors. These include the cultural stance of Francis Spufford (1997) and Paul Simpson Howsley (1998), the six imaginative, literary themes of Elizabeth Leanne (2012) the personal perspectives of the travel writer Sarah Wheeler (1997), the social and scientific writing of Gabrielle Walker (2012) and the factual accounts of the geography economics, politics, biology and exploration of Antarctica (Alan Hansom & John Gordon, 2014).

As Dey (2007) suggested in his critical discussion of grounded theory, completion of the literature research had extended researcher thinking about the issue. It raised new questions to those originally posed. The discourse of the place representations of Antarctica was combined with original research in an English secondary school to consider the following questions.

4.4. The Case Study Research Questions

- What are the key components of the imaginations and the 'realities' of the student perceptions[335] of the Antarctic continent?
- To what extent are the dominant academic discourses on the construction of place evident in English students concept maps of Antarctica?

335 Also referred to in the literature as geographical imaginations and mental maps

- What were the sources of these perceptions? To what extent were student perceptions and understanding of Antarctica gained from formal or informal representations of Antarctica and were are any of these diffused through time and space?
- What was the impact of formal and informal 'texts' and the myriad representations of Antarctic they contain on the sample research students' geographical imaginations of Antarctica? Do these representations create student perceptions that do not reflect the 'reality' of the place of Antarctica?
- Do technological innovations in the creation and presentation of representations influence the students' perceptions of Antarctica?

4.5. An Interpretative Multi Modal Approach

With the recognition that flexibility and openness were required in the research methodology, an interpretive multi-modal method approach was employed to collect, collate and analyse data in the classroom situation. Mason (2006) evaluated the advantages of this approach but Kress and Mavers (2005), and Greene et al. (2005), who employed mixed methods for their research emphasised the difficulties they encountered. Their research highlighted the need to be fluid and intuitive in the design and progress of the research. It became clear, in both setting up and conducting this research, that a pliant but replicable approach was the key to creating a valid, reliable, transferable methodology in listening to students and conducting this research on the learning about distant place in two English secondary schools.

4.6. Teacher Use of Antarctic Resources

An online survey conducted with fourteen secondary high school teachers examined the resources used for teaching about the place of Antarctic and why they

taught about Antarctica. The results from this survey are not included here. The findings were used by the researcher to examine the structural context of the teaching of Antarctica as a place, to increase the researcher's understanding of the resources teachers employed in their lesson planning and classroom situations and possible sources of the representations experienced by school students. Scrutiny of these materials enhanced the researcher's knowledge of the sources of representations encountered by students prior to the conduct of the research in school. This facilitated the researcher's role as a moderator in the focus group discussions in the school situation.

4.7. Ethical Procedures

The conduct of the research followed the core principles for research with children and the secure storage of data. These were identified from the ESRC framework for Research Ethics (2010), the ethical guidelines of the research university and the writings of Alderson (2000), Alderson and Morrow (2004), Burgess (1984) and Cohen, Mannion and Morrison (2007). Ethical permission was granted for the research by the university and the school. Ethical procedures were adhered to throughout the research. In the school setting this became a balancing act between the requirements of the university ethical committee, the school procedures for parental consent and respecting the rights of the volunteer student participants.[336] To achieve the latter, student consent was sought alongside parental consent. Moreover children

[336] The tension that arises between the demands of a university ethical committee and the practices of schools discussed by Tracey Skelton (2008) Research with children and young people: exploring the tensions between ethics, competence and participation, Children's Geographies, 6, (1) p.21-36

are considered by law to be competent in the legal sense.[337] The students were fully aware that they could withdraw from the research at any point.

4.8. The Pilot Study Research

4.8.1. The Setting

An exploratory pilot research session was conducted in a North West English rural secondary school. The school was selected to allow interaction with students of mixed gender, ability and ethnic background. The head teacher and staff were flexible and facilitating and keen to engage the school in research. It was conducted with nine enthusiastic volunteer year 7 students.

4.8.2. Participatory Research

A multi-modal approach to data collection was adopted. Participatory research, as discussed by Bailey et al.(1999) and Pain (2004) enabled, the voices of the students to be listened to in order to gain an insight into their social cultural perceptions of this distant place and the sources from which they obtained their ideas. The study enhanced the reflexivity[338] of the researcher because she was taken into the students' popular culture. The ideas of the students were considered alongside the theories of the academics. Adopting the work of Christensen and Prout (2002) and others, the

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[337] It is a case of law arising from the Children Act. Indeed, 'a parent cannot consent to research on behalf of a competent child because the child has the power to do so.' Cited in Williams, B. (2006)

[338] See Adams, M. (2003) for a critical discussion of the reflexive self

students were regarded not as objects to carry research out on but as co-researchers and as subjects of research (that is someone who participants in and who is changed by their social and cultural world).

4.8.3.Students as Co-Researchers

The students acted as co-researchers in the trialling of methods for the completion of a participatory diagram of a concept map. The idea of a concept map was developed by Joseph Novak in the 1960s. [339] It has become a familiar tool for use in the classroom.[340] White and Gunstone suggested a number of steps in the construction of a concept map. Small sets of cards with concepts are given to each students. These are sorted and any unknown terms put to one side. The cards are arranged onto a piece of paper and lines drawn between related concepts. The nature of the relationship is then written on the line (1992, p.15).

The naming of concepts by the researcher would have superimposed pre-determined ideas on the students' maps. For this reason, the process outlined by Gunstone and White (1992) was discarded. The researcher and the pilot school students worked together to trial different strategies to identify and record the perceptions the students held of Antarctica. It was decided that the concepts would be recorded either in words or drawings directly onto a sheet of A1 paper using, if they

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[339] Tony Buzon (1974) used the term Mind Map on his own adaptation of a concept map in *Use both sides of your brain*, Dutton New York. He later claimed copyright on the term mind map. Some of the older research participants were aware of the technique of mind maps.

[340] Concept or mind maps have been promoted as teaching techniques by Leat and Chandler (1996) Leat (1998) Nichols and Kinniment (2001) amongst many others.

wished, different coloured ink for each concept or, alternatively, the concepts would be recorded on a post-it which they would then place on the A1sheet. Writing on the A1 sheet, they recorded their perceptions about the concepts and links were made between the concepts. In order to elicit the sources from which their perceptions had originated, the students identified the source of their perceptions and recorded them onto post its. They then extended their maps and placed the sources' post-it onto the A1 sheet linked to the appropriate perception. During this final stage, voice recorded partnered discussion took place. The discussion allowed unconscious thoughts to be made conscious and shared. Each student only recorded their own sources but engagement with their peers drew out their own thinking.

The conceptual maps acted as a prompt for a deeper analysis of the pilot students' geographical imaginations of Antarctica during discussion in paired, semi-structured interviews, in particular the sources for their perceptions on the maps and the influence of their lived world on the understandings of this distant place. The trial of a written diary to record further thoughts over a week proved to be ineffective.

4.8.4.Outcomes of the Pilot Study

The pilot study achieved its aims. Through the process of concept mapping, paired interviews and a focus group within the naturalistic setting of the school classroom, the children's culturally constructed perceptions of this place were explored. This included some erroneous perceptions of Antarctica, such as the conflation of the Arctic and the Antarctica environment e.g. penguins alongside indigenous humans

and igloos. Insight was gained into personal student concepts. They reflected the science curriculum work of Rosalind Driver that

> …children arrive in formal instructional situations with their own ideas and interpretations of the phenomena they are to study, even when they have received no systematic instruction in these subjects whatsoever.(Driver, Guesne, and Tiberghien (1985, p. 2).

The students were effective co-researchers and improved the research tools used for data collection. The identification of formal or informal sources by placing the post-its on a Venn diagram was trialled. It was dropped from the main school research due to time constraints.

Chapter 5:-The Research Methodology:-The Case Study

Enough of Science and of Art;
Close up those barren leaves;
Come forth, and bring with you a heart
That watches and receives

Source:-:-William Wordsworth, (1798) 'The Table Turned:-An Evening Scene on the same subject,' in *Lyrical Ballads* produced by Samuel Taylor Coleridge in collaboration with William Wordsworth

Introduction

This chapter discusses the mixed methods approach adopted for the case study to gather and analyse data about the perceptions held of the distant place of Antarctica by 3 groups of mixed ability students. This was conducted across the 11-18 age range in a market town comprehensive school in North West England. The findings are discussed in relation to the academic discourse on place and pedagogy. The purposes behind the adoption of this case study approach were:-

- To develop research processes to collect and analyse data to enable comparison and reflection upon the student perceptions of Antarctica and relate these to the academic debates on place.
- To determine and scrutinise in depth representations of Antarctica encountered by the sample of students.
- To enable the research students to develop deeper perceptions of the place of Antarctica and to engage in critical thinking on digital materials about place.
- To develop research activities that could easily be used by teachers or students to identify and develop critical perceptions of the place of Antarctica or other places in the classroom situation.

5.The Setting

The case study research took place in a medium sized, comprehensive secondary school in a suburban market town in the North west of England. This school was

selected because of previous professional contact by the researcher with the school. It had a wide catchment area which meant it provided a diverse sample of students from different ethnic, social, age and ability ranges. The head teacher and staff in the school were also fully engaged with the research process.

The head teacher had requested that the research process should be of benefit to the students. This was achieved by introducing all students to the idea of critical reflection on the representation of place. They gained knowledge of the revised concept mapping technique and the researcher film place matrix strategy. These could be useful for scaffolding studies of other places and revision purposes. They experienced digital materials that widened student understanding of the place of Antarctica. Copies of all materials used in the research were also left with school staff.

5.1. The Role of the Organising Teachers

Before the conduct of the main research, the organising teachers had outlined to the students the context of the research process and a brief background of the researcher. The lead organising teacher liaised on behalf of the researcher with the head teacher on the content of the parental consent forms to ensure the requirements of the university ethical committee and those of the school were met. They distributed and collated the parental consent forms. They engineered the release of diverse groups of volunteer students from year ten and year twelve classes and gained permission for

and obtained confidential information on student ability for the researcher.

5.2. The Research Participants

The research involved 41 voluntary participating students of mixed gender, ability and ethnicity. It consisted of three separate groups of students:-24 year seven students, 9 year ten students and 8 year twelve students.

5.3. The Research Sessions

The research took place over a period of 3 weeks. 22 year seven students attended all 3 weekly fifty minute sessions. The work of two students who completed session 1 and session 3 was also used because it provided the opportunity to consider their changed perceptions.[341] These sessions were conducted within the normal school timetable. Focus group discussions took place at the end of sessions one and two. The size of the year seven group imposed some formality and inflexibility on the research process. To avoid researcher initiation of student constructs and to make the student researcher interactions more informal than the normal school classroom situation, the researcher drew on her personal experience of teaching.

The same research strategies were employed with nine mixed ability year ten students. These were volunteers drawn from the whole year group selected by the organising school teacher.

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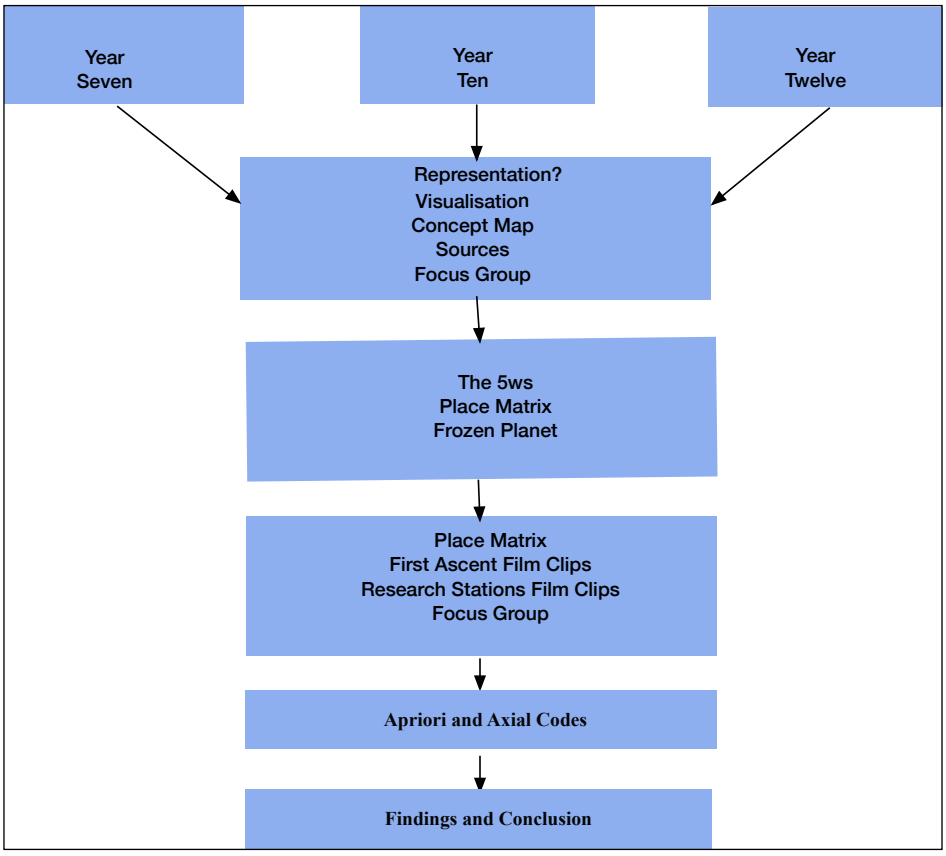
[341] 3 students completed session1 but did not attend sessions two and three so these were discounted. One student did not attend session one and his work was discounted.

The third set of research data was collected from eight year twelve students. This research took place in a sixth form meeting room. The three fifty minute sessions were held within one school day. This immersion into Antarctica focused the students on the research process. The smaller groups allowed greater interaction between group members and the researcher. All sessions in the school were video recorded. The video camera was set up in classrooms before the student arrival.[342]

Figure 5.1:-The Classroom Research Activities



5.4.Introducing the Students to the Research

The first session for each age group began with an introduction to the researcher and a reminder of why and what the research was about. The students were guided through

342 The researcher developed the necessary technical skills, to record, process and analyse digital recordings without the intrusion of a third person in the research situation.

the ethical consent form. The issue of confidentiality and their right to withdraw from the research was emphasised.

Displayed on the whiteboard as background was the image presented in figure 5.2 of a snowy slope in Antarctica showing a penguin on a tourist snow track and the question Whose Story? The image was used to take the research out of the classroom and to the distant place. The image was selected to be memorable and to set the research in the context of a cold place. It was cropped to give a limited influence on the student's concepts of the landscape of Antarctica.

Figure 5.2:-Antarctica Whose Story?

Source:-Teresa Lenton (2007)

5.5.Discussing Representations

The students were asked if anyone had been to Antarctica? This was followed by the question, did they know anyone who had been to Antarctica? Their response apart from one student was no.[343] Through the discussion of these responses the researcher introduced the idea that, for most people the place of Antarctica can only be

[343] One student said they knew someone who had visited Antartica but this was corrected in the next research session because they had visited the Arctic.

experienced through representations. This led onto the discussion of the following open questions:-What is a representation? Who makes representations? What are formal and informal representations? The student views were recorded by an omni directional mike attached to the video camera.

Through this sharing of ideas, it was apparent that the younger students understood what representation meant. For example, 'You are trying to show something without actually saying it like on a map you use symbols which are actually drawings representing what you are trying to show.' The purposes of this activity was to introduce the students to the idea that there are many representations of Antarctica, that they should consider the effect of the producer of the representation on the content and to emphasise that the researcher was looking for the students' personal ideas of Antarctica gained from many representations, both formal and informal. Appendix 2 displays the text which formed an A4 landscape worksheet which could be used to scaffold students ideas. Critical reflection on representation was a new way of thinking to many students. This activity met the school requirements and perhaps the demands of any educational research that the participants should gain from the experience.

5.6.Concept Mapping and Visualisation

In the next stage of the research, the students became active participants in the research process through the construction of their own personal concept map of Antarctica. The mapping technique developed with the pilot school co-researchers,

outlined in the previous chapter, was used in the research.

5.7.The Construction of Concept Maps

The students were introduced to the outlined technique for producing a concept map. They recorded their concepts of Antarctica, either directly onto a large sheet of paper or onto a post-it using words, pictures or a combination of the two. The students at the pilot school had felt that having a choice of method for recording enabled their thoughts to flow more freely. It was emphasised that the researcher was seeking the personal ideas of each individual student. It was stressed that all sources were important whether gained from formal or informal sources, that there were no correct answers and that everyone's map would be different.

Each pupil was asked to write the word Antarctica in the centre of a large sheet of A1 paper. They were then told to draw a line out from the word Antarctica and either write the word penguin, draw a penguin on the sheet or place on the sheet a post it with a word or drawing. Enabling flexibility for their concept map construction had arisen from the discussions with the student co-researchers in the pilot and it allowed for individual student preference and ability.The researcher invited the students to add any additional ideas that came to their minds about penguins in the place of Antarctica around the word penguin. Perceptions about penguins were chosen as the exemplar for the starting point because it was the major component of all concept maps at the pilot school.

5.8. Visualisation

The next step was to create a more relaxed atmosphere for the research setting and to try to take the students imagination and memory to the place of Antarctica. The researcher asked the students to sit back, and to visualise the place of Antarctica. The music, *Antarctica* performed by Vangelis and written by Koreyoshi Kurahara for the film Antarctica was played. It was chosen because it was unlikely these English children would have encountered it. It was released in 1983, to accompany a film about the 1958 Japanese Antarctic Expedition. It is synthesiser music without words. This visualisation strategy began the process of the students' recall of their conceptual ideas on Antarctica.

5.9. Extending the Concept Map

The students extended their maps by adding new concepts and related ideas to the concepts already on the maps. In the next stage the students created links between the concepts and if they wished explained these links by writing along the lines. The music, *Antarctica* written and performed by Medwynn Goodall in 1993 was played as mellow background music during this mapping activity.

5.10. The Advantages and Limitations of Concept Mapping

The research of Brooks (2009) and Hemming (2007) has demonstrated that through the techniques of visualising, representing and discussing ideas, concept mapping provided students with the opportunity for the externalisation of their ideas.

This proved to be the case in this research setting. Each individual enthusiastically created a visual map of their own diverse concepts of Antarctica and the connections between them. The technique created the engagement of the students with the research.

Although the year seven children were in a paired seating arrangement, they were careful to work on their own maps as evidenced by the video. Comparison of the seated paired students concepts maps revealed different thinking. The possible influence of peers on student thinking is a limitation on the use of the technique.

Another advantage of this method was that, through the creation of an artefact i.e. the map, the variations in each student's perceptions of Antarctica could be discussed as a whole group. This, along with analysis of the video recording and concept map transcripts exposed further individual thinking. It provided data that could be coded. Concept mapping is a useful research technique for revision and this helped to meet the head teacher's request that the research was of benefit to the students. After completion of the map, the students worked in pairs to compare and discuss their maps. Despite the use of an omni-mike, the class size limited the discussion picked up on the tape for the year seven class.

5.11.Source Identification

The mapping of perceptions was followed by the identification of the sources of the student's perceptions of Antarctica. The technique had been devised by the researcher working with the pilot study students. The researcher asked the students to

think about the memorable formal and informal sources from which they had gained their ideas about Antarctica. The post-its formed a second layer of information on their maps next to the concept. The students worked in pairs for this activity. This discussion acted as a memory prompt. It could be argued that the presence and comments of another affected the individual account. However researcher observation in the classroom, analysis of the session video tapes and their actual maps showed that they embraced the researcher's request to record only the sources they had encountered. Some sources were applicable to several concepts and the students drew links from the source to the multiple concepts. This technique had similar advantages to that of the concept map production outlined above.

5.12.Paired Interviews versus Focus Group Discussion

After the pilot study session, the researcher had undertaken a critical review of the literature on focus groups, including Atkinson and Coffey (2003), Charmaz (2002), Flick (2002), Bryman (2008), Hammersley (2007), Cohen, Mannion and Morrison (2007) and Robinson (1998), to decide whether to use paired interviews or a focus group. Useful data had been gained from the paired interviews in the pilot study but use of this technique had raised questions for the researcher. The main concern as Christensen (2004) critically discussed, is how, when working with children in the interview setting, the adult interviewer holds power over the children. In this research context, the researcher did not have the opportunity to develop any prior relationship with the students and so was seen as an adult teacher figure in the classroom. School based norms of the teacher in control inevitably came into play and this may have

impacted on the discussion.

The focus group strategy was successful in the pilot study in enabling the ideas of the students to be considered. This method had produced high quality data although less data than the one to one interviews. Working and discussing in groups was familiar to these English school students. This more informal setting gave confidence to the students and placed the conversation in their hands. It enabled the informants to prompt one another, discuss ideas in their own words and challenge each other. It allowed the less literate students to fully engage in the research. Bryman (2008) suggested the focus group research technique played an important role in providing access to the ways in which members of audiences read media and cultural texts. Using it after the place matrix activity in session two and three provided insights into students' values attitudes and opinions about Antarctica.

Bryman (2008) Robinson (1998), Singleton and Stratts (2002) and Darbyshire, MacDougall, & Schiller (2005) emphasised the importance of the role the moderator takes. Due to experience, the researcher was able to be neutral and to balance involvement in the discussion through prompts and open questions. Student comments were probed 'to make capital out of the subjective elements' they revealed about their concepts and sources of representations (Robinson 1998 p.419). The researcher was able to keep the discussion focused. The focus strategy was easier to organise and economical on researcher and student curriculum time compared to the paired structured interviews. This interactive discussion revealed that some students had narrow perceptions on the place of Antarctica and others held perceptions across the social, cultural and natural aspects of the place.

5.13.Challenging Place Perceptions Using Digital Films

5.13.1.The Cultural Construction of Images

This section of the research was influenced by the theoretical debates about visual and digital cultures. Visual imagery, as Rose, Jackson, Daniels and others[344] discussed is never ‘innocent’. It is always constructed through ‘various practices, technologies and knowledge,’ and embedded in a wider cultural context (Rose, 2012, p.17).

5.13.2.Technological Nature

In learning about the distant place of Antarctica, it is only possible for students to experience its environment through representations especially digital materials. It is unlikely that any will have visited the continent. Few will have had personal contact with people who have spent time there or ever be able to visit it themselves. They only ever experience the place as ‘technological nature.' Peter Kahn coined the phrase ‘technological nature to describe how videos, TV programmes, live web cams and virtual computer image mediate, augment, or simulate the natural world’ (2009, p.37). Through activities in the classroom the researcher sought to establish if and how student perceptions could be changed with exposure to digital materials.

5.13.3.Film Clip Selection

In the second and third research sessions, digital film clips were presented to the students. The researcher selected these clips between sessions one and two. The initial

[344] See the literature review section 2.35

analysis of the student concept maps of Antarctica portrayed some naive views, the dominant cultural discourse of Antarctica as an unspoiled wilderness. There were silences in the data and the conflation of perceptions of the place of Antarctica with other extreme cold places. Digital film resources were chosen to challenge the perceptions the students revealed on their concept maps and in the focus group.

The research situation was now generating the research process and enabling the collection of original data as the modified grounded theory approach of Strauss and Corbin (1990) and Charmaz (2006) had suggested. This pedagogical data revealing student perceptual thinking could then be compared to the theoretical discourse on place.

The researcher was able to adopt a critical stance to film clip selection due to a comprehensive knowledge of the film sources gained from research of the literature and the survey of teachers. The films were analysed by the students using a film place matrix (see section 5.20).

5.14.Discussing Physical, Social and Cultural Place

The second case study research session began with a discussion of the words physical, social and cultural.[345] [346] The meaning of these terms was discussed with each group of students. The year seven students had just completed a study of their

[345] The year seven students had worked with these terms in recent geographical work on their home area.They were very familiar terms to the elder students.

[346] In this thesis the definition of culture is taken from that of Stuart Hall in his critique of the cultural states culture, it is argued, is not so much a set of things, novels and paintings or TV programmes or comics as a process, a set of practices. Primarily culture is concerned with the production and exchange of meanings between the members of a society or group. (1997, p.2)

local area and understood the terms. They discussed pop culture, football, school society and different social groups in youth culture. The year ten and twelve students understood the definitions. The terms were displayed orally and on 3 power point slides. The students also engaged in a discussion about who creates representations of Antarctica, why they might create them and whether this leads to bias in the 'texts'. The discussions were recorded.

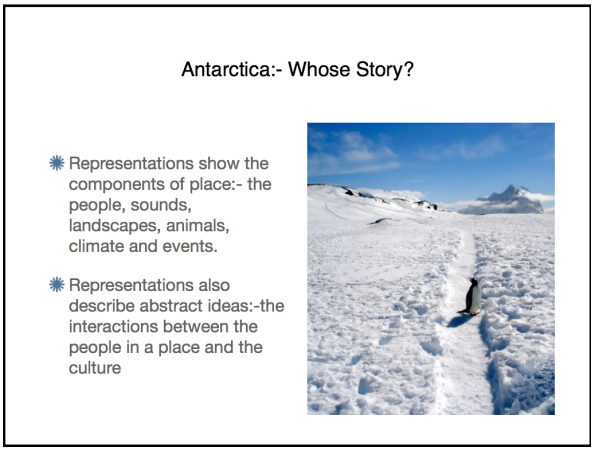
5.15.Session Two:-Frozen Planet Film Clips

At the beginning of the session, the meaning of representation was again briefly discussed and the students were given a small hand out with the Gentoo penguin image from session one and a definition of representations (see figure 5.3). This was partially based on the year seven students' discussions of representation in session one.

This was followed by a short power point presentation and discussion on representations. The aim was to encourage the students to think in a visually literate way about the video clips they were going to view.[347] The digital representations employed in session two consisted of several clips taken from Frozen Planet (2011) produced by the BBC and narrated by David Attenborough. These representations of Antarctica are presented as if 'created in the mode of science, they claim to represent true knowledge about the world' (Scholtman and Migelbrink, 2009, p.2).

[347] Bettina Fabos (explained 'Visual literacy is 'a way we understand the stories behind and about the image, and attempt to make sense of our image-laden culture' (2000 p.20)

Figure 5.3:-Representations Handout



Source:-Teresa Lenton. 2012

41% of the students noted on their mind maps that they had already accessed some or all of the BBC documentary *Frozen Planet* (2011). Screening carefully selected clips from this documentary as part of the research project ensured that all students had a similar background knowledge before the session three materials were shown. It gave every student the opportunity to critically reflect in a formal situation on these representations. Clips were selected that presented predation and the life cycles and struggle for survival of the wildlife. These were used to challenge the naive ideas about wildlife recorded by many students on their concept maps and to enable the students to 'question' the truths displayed on the screen. The music and narrative presented at times gave an anthropocentric view of the wildlife. Clips displaying the ceremonial obelisk and flags at the South Pole, inside the Amundsen Scott base, inside the Terra Nova (Scott's hut) and some narrative about the Scott expedition were also screened.

Overall, in this and other 'Attenborough' documentaries as in many wildlife documentaries, 'the latent images on film taken by the camera shutter' and the

narratives are presented to ‘the uninformed as an overwhelming conviction of fact’ (Goin 2001 p.363). Sir David Attenborough and Andrew Jackson, (head of the BBC's Natural History Unit) acknowledged that

> Our contract is with the audience, to tell them the truth and to give them an enjoyable experience while we're doing that. There are times when the shots do not always happen in that particular order, but that is film-making. (Peter Walker 2011).

Alongside the elements of truth in these digital representations of Antarctica there are distortions, such as the proximity of the base to the ceremonial South Pole, the number of residents at the Amundsen Scott US Base and the size, extent and impact of the buildings on the landscape and the environment.

5.16.Session Three:-Research Stations Film Clips

In session three, the researcher used digital images to challenge the perspectives of the Antarctic research stations revealed by the first cycle of analysis of the student concept maps. The film clips selected contained representations of the new Amundsen Scott research station at the South Pole, other research bases, varied research activities and women in the role of station directors. These were taken from the Australian Antarctic government web site.[348] The representations presented the impact of humans on the Antarctic environment. They also emphasised that many support staff live and work at Antarctic bases.

The first film clip *Voyage 3*, 2011 portrayed the Aurora Australis an Australian ice

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[348] http://www.antarctica.gov.au/living-and-working/stations accessed 25/01/2016

breaker research ship on a voyage to supply the Davis and Mawson research stations and bases and to conduct scientific research. This shows vivid images of the ship sailing through the Southern Ocean and cutting through the ice under clear blue skies.

This was followed by contrasting aerial images of the landscape in and around the Davis station taken by the ship's helicopter. The transcript for the film detailed how these portrayed: an elephant seal colony; the research base consisting of a number of large scattered buildings built on frozen moraine and sands which were ice free; the Vestfold Hills, showing bare rock; the Ingrid Christensen Coast with the ice shelf and ice bergs; and the Sorsdal Glacier and steep ice-covered slopes leading up to the continental plateau. These striking and varied images provided a different perspective to the Antarctic landscape to that shown in *Frozen Planet* (2011) which mainly presented images of coastal sea ice and the Antarctic plateau. The film then moved to every day life at the station and the varied research activities such as ice coring and marine investigation at out bases and on the research ship. There is background music but no narrative to influence student thinking.

The beginning of the National Geographic documentary *MegaStructures South Pole Super Station* narrated by Christian Rudshka[349] portrayed the cultural and environmental place context of the South Pole and the building of the new Amundsen/ Scott research station at the South Pole. It also discussed the type of research conducted at the base. The final section of the film showed the size and design of the new building, the accommodation, facilities for all residents and the equipment for scientific research. It gave a close look at the role of the construction and support

[349] This was produced by Love West in 2008 published on You Tube https://youtu.be/x3zLfVynYVE

workers and the facilities at the Pole and the impact of the building on the environment. The representations presented different images of the South Pole to those shown in *Frozen Planet* (2011). There was music but no narrative to influence student thoughts.

5.17.Session Three:-Return to Antarctica:-First Ascent

The final set of digital materials was a short film *Return to Antarctica :-First Ascent* (2008). This was taken from the popular culture website *YouTube*. It portrayed travellers engaged in adventure sports. The non scientist humans speak with a great enthusiasm and love for the Antarctic environment. The film depicted high mountains, blue skies and helicopter travel. It discussed the risks but presented Antarctica as a survivable challenging environment if suitably dressed. The background music is modern, conveying energy and excitement. It clearly stated that it was linked to a guiding and a clothing company (a promotional film) which influenced the representations. This raised the question of whether the students would be critical viewers and become aware that this film contained advertising material. As before, the films were used in conjunction with the film place matrix and focus group discussion.

5.18.The Film Place Matrix

In sessions two and three, as the students viewed the digital materials they recorded their thoughts on the media using a place representation matrix grid. The

format of the research film place matrix was adapted by the researcher from several place matrices currently used in classroom teaching. It was devised to scaffold student thinking, assist with spelling and provide a more structured tool for research data collection than the open place matrix used in some English secondary classrooms. The aim of the matrix was to enable students to consider the physical, human and cultural aspects of place represented in the films. In addition as Relph (1976), Catling, (2003, 2005 & 2011) and Rawling, (2011) suggested, to encourage students to consider their emotional engagement with place. The place matrix enabled the researcher to obtain a record of the students affective and cognitive response to selected digital materials about Antarctica. See appendix 1 figure for a copy of the film matrix.

5.18.1.The Design of the Film Place Matrix

The researcher's film place matrix was based on the 5 Ws of place. The 5 Ws, Who? Where? What? When? and Why? were originally introduced into the classroom as a technique to question place by Bennetts (1986) in an HMI Curriculum discussion paper. The case study students were already familiar with this questioning strategy.[350] Michael Storm (1989) expanded upon the 5 W technique but his questions were deemed by the researcher as too complex to use for the first viewing of a video.

The 'What' of place formed the core of the matrix. Cultural aspects as well as the natural and the social aspects of place were given recording space. These three themes

[350] Nichols and Kinnniment (2001) recommended the 5W's approach as a thinking skills technique to encourage student questioning (p.54 & 59) along with several primary geography educationalists.

were then broken down into categories, for example glaciers and plants. The categories used arose from the pilot survey and the literature review. The students were asked to record their emotional responses to the films as well as objective descriptions. A balance was taken to try to ensure that the language used made the sheet accessible to all students from the age of 11 to 18. All the terms on the sheet were discussed in the research session with the students to ensure understanding. [351] [352] This was A2 in size to give space for the writing or drawing of ideas.

The remaining 4 W's (Who? Where? Why? When?) were used on the matrix for students to record their thoughts about the producers of the representations. The information on the 'When and Where' spaces were provided by the researcher to set the 'video' into context. The younger students found it difficult to reflect on who the producers of the representations were and why they made the film. Reflecting on video production was new for these students. This was resolved through a group discussion of who produced the films and why after the completion of the place matrix.

5.18.2.Advantages and Limitations of the Film Place Matrix

The research artefacts created by the matrix were easily coded and analysed. They revealed that each individual read the "texts' in their own way depending upon their own attitudes, values and experiences (Bourdieu's habitus). It was a successful tool

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[351] The terms were put on the matrix to try to ensure inclusivity for a data collection tool to be used across the age ranges. Perhaps these were intimidating for some of the younger students.

[352] The place matrix without these terms could be used for any place.

across the age and ability range. The matrix enabled the students to record their own thoughts, including their emotions (or in their words their feelings) about the different aspects of Antarctica presented by the images. As the students acquired familiarity with the matrix, deeper data was recorded. The matrix could be used in different schools[353] and presented to teachers as a technique for deepening student place knowledge.

A limitation of this scaffolded method of data collection was that the students were used to recording facts for learning and repetition in exams. This may have led to some students finding it difficult to record the affective aspects of place. The researcher discussed this with the different groups beforehand and the use of the structured matrix was followed by focus group discussion on the ideas presented by the film images. Filming the activity also captured their emotional responses.

Unfortunately, the place matrix could not be trialled before the main school research due to school constraints on access to students and time constraints. However the views of school colleagues were sought during the design stage of the matrix. The design was discussed with year ten students at the end of the research.

A key aim of the construction and development of the film place matrix was to try to encourage the students to actively read and critically view representations of place and not to see them simply as mirrors reflecting reality. Len Masterman in his 1985 book the *Teaching of Media* suggested that teachers should demonstrate precisely how and why television's representations are produced by whom, in whose interests, using

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[353] There has been much debate in psychology and education about the need for replication of research methods. See Ritchie, S. Wiseman, R. and French C., (2012) for a discussion of this issue.

what kinds of rhetorical techniques, and producing what kind of consciousness. This would encourage the students not to simply accept digital materials as 'reflections', part of the way things are. (1984, p.5) The researcher, along with other educators, Buckingham (1987) and Lambert and Morgan (2010), believes that as part of formal education students should learn to actively read and criticise representations.

5.19. Websites

It was not possible to conduct a research session looking at websites about Antarctica within this school timetable. An attempt to do this as a homework exercise with year seven was unsuccessful because the students had problems accessing the given web sites.[354] The web sites were originally designed for students and two of these sites had received educational awards. The sites had become too complex for students to navigate with the later addition of data, without precise direction to the exact pages. Since the conduct of the classroom research, restructuring of the websites has occurred and many new materials including film clips have been added. Previously these sites had provided nuggets of information rather than creating a holistic sense of Antarctica as place. The differences in national web sites suggest a critical evaluation on the national representations of Antarctica across the globe could be a future area for research.

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[354] The addresses were given to the students on a card to take home or to the library. They were Cool Antarctica, http://www.coolantarctica.com
Discovering antarcticahttp://discoveringantarctica.org.uk/resources/activities/
and antarctica.gov.au accessed 29/01/2016

5.20. Data Coding Procedures

The multi modal research methods generated different types of data. As discussed in the literature review, the processes of perception and metacognition meant the conceptual understandings revealed by the data collection were unique to each individual. The students thoughts also contained heuristic and overarching concepts and knowledge or propositions, consisting of facts, opinions and beliefs.[355] Glauser, Strauss, Bryant and Charmaz (2007) and Larossa (2005) have pointed out that, whatever qualitative data analysis approach is adopted, the researcher needs to ensure that conceptual comparison is at the heart of the analysis process.

The development of categories for data analysis began manually with a study of the students' concept maps. The theoretical sensitivity gained from the researcher's experience, the pilot study and the literature review enabled identification of the sensitising[356] concepts of the place of Antarctica. These were nature (real, imagined and constructed), cultural and the social elements of place.

A major question in designing the analytical research methodology was whether to use content analysis and fit the data to codes categories/variables or to use thematic analysis.[357] The latter was chosen because, instead of 'forcing preconceived theoretical ideas onto the research' (Kelle, 2010 p.19), it allowed the various themes to arise from the data presented by the research participants and the identification of

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[355] See Gunstone R. and White R. (1992) *Probing Understanding* pp. 3-6

[356] Sensitising concepts were a notion of Blumer (1954) cited in Hammersley and Atkinson (2007) They provide a framework to the research. They are described by Charmaz as "concepts that give initial ideas to pursue and sensitise you to ask particular kinds of question about the topic (2006, p.16)

[357] See Attride-Stirling (2001), Bryman (2008) and Clarke and Braun (2013)

the relationships between the code categories (Clarke and Braun, 2013 and Bryman 2008) The generation of the original research methodology to investigate student perceptions place continued with the manual interim analysis of the data from the concept maps produced in session one. This influenced the design of the place matrix and the selection of digital materials for use in sessions two and three.

5.21.Computer Assisted Qualitative Data Analysis

With transcription, the amount of data collected in the three research sessions became unwieldy. Turning to Computer Assisted Qualitative Data Analysis (CAQDAS) allowed the unlocking of the research analysis and perhaps increased its validity. Coding the data began with Atlas Ti6. However video could not be analysed with this programme.[358] Instead, manual video transcripts were produced. Transcripts were created of the concept maps. This was a very time consuming process but it had the advantage of creating a greater awareness of the individual students and the role of the researcher in the data collection. Online research verified the credibility within the academic world of the software package of Dedoose which was compatible with the Apple software used by the researcher. The computer software enabled continuous critical reflection and adjustment to the data during the data analysis. The researcher ensured that the university and accepted ethical procedures[359] were adhered to throughout the study for data collection entry and security.

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[358] This facility is now available in this package

359 Alderson, P. (2000), Alderson, P. and Morrow, V. (2004), Christensen, P. (2004), Christensen, P. and Prout, A. (2002), (ESRC 2012)

5.22. The Coding System

5.22.1. Apriori Codes

Scrutinisation of the literature had led to the emergence of the sensitising codes of physical, social, cultural and natural place with which to consider the student data. Through open coding further themes were identified in the student data to produce eight apriori codes.[360] Four apriori codes were identified that linked to the discourse of place literature. These were aesthetic place, cultural place, natural place and social place. It became evident during the coding process that a fifth apriori place code was necessary. This was political place. It was separated from the cultural place code to enable identification of the sources of political concepts and to establish student understanding of the significant and unique sovereignty status of Antarctica.

To set the research in the educational context, three pedagogical place codes were gleaned from the literature on place and place pedagogy discussed in chapters 2 and 3, especially the work of John Agnew, (1987), Relph (1976) and Cresswell (2004 and 2014). The codes were location, locale and a sense of place which have also become standard educational terminology. To consider the influence of the separate texts on the student concepts of Antarctica, a further apriori code named sources was created. Refinements over the research period made by Dedoose to the coding software meant it was possible to create new data sets by combining apriori codes and to exclude codes from analysis.

[360] Also described as categories of analysis, open codes and described as primary codes in the software package

5.22.2.Axial Coding

Although this research did not follow the original procedures of grounded theory, it adopted the revised strategy suggested by Strauss (1987) and Strauss and Corbin (1990, 1998) of moving from apriori coding into open, tentative axial coding (secondary, children and grandchildren in the software package terms) was adopted. By allowing the data to speak, the axial coding changed and evolved with the progression of the interim analysis of the material from students of different ages and abilities.

These axial codes provided the keys for analysis and the ability to search for patterns of commonality, differences and relationships in the data (Strauss and Corbin 1990, p. 62; 1998, p.102). The final derived axial codes are shown in diagrammatic form and discussed in the following chapter.The software allowed the researcher to check if data had been entered correctly and to compare excerpts within each code. A point of saturation was quickly reached for some codes, that is the data no longer presented new insights into the students thinking. New theoretical aspects continued to emerge throughout the coding.

Schiellerup (2008) described the risk of losing the overview of the research during the coding operation. It became apparent that the line by line coding gave a clear incidence of occurrence. However some of the excerpts were placed into more than one axial code. This required careful consideration of the code re-occurrence.

Recording all the descriptive elements of the concepts on the mind maps created

the over-dominance of some of the subcategories in the coding framework.[361] Despite the addition of code weighting, this was overwhelming significant aspects of the data and obscuring some of the data patterns. It reduced the capability of the software to analyse the data. Fortunately, the Dedoose software had the advantage of being able to add in new axial codes to create clusters of sub codes.[362] Ascertaining what to retain and why led the researcher to the conclusion that there was a need to return to the open thematic approach to raise the apriori and axial coding to a higher conceptual level.

5.22.3.Selective Codes

This led to the addition of two more apriori codes to the framework. These selective codes were conflation [363] and attitudes to nature (such as anthropocentrism.[364] Technically, attitudes are cultural constructions but a separate code was necessary to distinguish this important information. The axial codes of anthropomorphic,[365] topophillia and topophobia,[366] were added under the aesthetic

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[361]For example, the concept of 'penguin' included many descriptive elements such as red feet, huddle together and are black and white

[362]For the concept penguins the axial code of characteristics was added.

[363] This conflation refers to students of all ages and ability combining some or all of the physical, ecological and human attributes of the places of Antarctica, the Arctic and other extreme cold, icy and mountainous environments.

[364] Preston defined anthropocentrism as 'an overemphasis on the centrality of human values and concerns at the expense of nonhuman ones. In ethics, anthropocentrists maintain that humans are the primary and often the only centres of value in the world. They deny that anything nonhuman has any value in itself.' 2003 pp.xi)

[365] The attribution of human characteristics or behaviour to creatures, gods, or inanimate objects (Piaget, 1929)

[366] See section 2.14.

code enabling these affective responses to be identified. This process allowed the researcher clearer scrutiny of higher order patterns in the data. The code of conflation led to axial code re-occurrence. Amendments were also made to the axial code tree to prevent false data counts. Walker (2013) has described this code refinement as 'listening to the voices of the code.' Selective coding enabled the identification of important sites of silence in the data and the impact of the digital resources used to challenge student perceptions in research sessions two and three. Refinements over the research period made by Dedoose to the software meant that in the data analysis it was possible to create new data sets and exclude individual codes from the analysis.

5.22.4.Descriptors

To enable comparison across the student data for individuals students and subsets, the descriptors of year group or age, gender and ability levels were created.[367] These are shown in Table 5.1. The descriptors, age and year group are interchangeable.[368]

The mind map descriptors were divided into the categories of concepts and sources. The descriptor of place matrix was divided into three categories of Frozen Planet, First Ascent and Research Bases and a descriptor of focus group was added to allow further analysis and correlation of the data.

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[367] Cat Scores are the results of Cognitive Ability Tests taken in many English schools in year 6 . These tests which standardised to the age range 9:06-11:11. There were three tests for the Cat score in 2011. These identified students' strengths, weaknesses and learning preferences through a series of verbal (language and vocabulary), non-verbal (reasoning, patterns, spatial thinking) and quantitative tasks, (numbers skills and maths reasoning). The student scores range from 60-140. Any score above 100 is above the national average. The tests had been undertaken at the start of the school year.

[368] Year group is specific to United Kingdom schools.

Table 5.1:-Data Descriptors

Age	**12/13**	**14/15**	**17/18**
Year Group	7	10	12
Gender	male	female	
Student ability	Mean Cat Score	Projected mean GCSE grade	Projected mean A level score
Student Identification	1-28	1-10	1-9
Mind Map	Concept	Sources	
Place Matrix	Planet Earth	First Ascent	Research Bases
Focus Group	Year Seven	Year Ten	Year Twelve

Inevitably the open coding of data is subjective. Only one researcher applied the codes to the data. However, the necessity to recode some of the data as the axial coding progressed, technical failures of the software and software upgrades have ensured single researcher robustness in the application of the codes. The axial and apriori codes derived from the students' mind maps in the pilot project paired interviews had allowed the questioning of every aspect of the students' mind map. In the research project, the size of the year seven group made this impossible. The creation of descriptors enabled cross data and session comparison and analysis.

Conclusion

This chapter has outlined the critical thinking behind the development of this mixed method research methodology and the multi-modal data analysis within a case study approach. The strength of this methodology lies in its gradual evolution through the researcher's immersion in the theoretical cross disciplinary debates on place, place pedagogy, research theory and the previous practical classroom experience of the

researcher. The participatory input of the students in the pilot study led to the development of effective classroom techniques to create research tools to collect concept and source data. The engagement of the research secondary students across the age and ability range within the classroom enabled much data collection.

The use of the computer data analysis package was time consuming and at times problematic. However, it allowed the identification of the trends, anomalies and comparison of the data applicable to individual students and different descriptor data sets. It provided easy reference back to the digitised materials for each student and the opportunity to create mixed method analysis and chart production. It illuminated the exposure of students to representations and provided the opportunity for peers to examine the anonymised data. A transferable research analysis technique using computer software for the collection of student perceptions of place was created.

It could be said that a limitation of this research is that it took place in only two schools. The results discussed in the findings are indicative of student thinking for this sample of students at a point in time. The decision to focus on a case study approach in one school enabled the voices of the students to be heard alongside the theoretical discussions on place conceptualisation and the representations of the place of Antarctica. If the film place matrix sub headings are modified, the research tool is transferable to research student perceptions of other places. The devised research tools can be used by classroom teachers to encourage students to think critically about their own concepts of a place and the representations they encounter.

Chapter 6:-The Research Case Study Findings

> *A geographic representation is not a window through which we see worldly objects with our own eyes but rather a creative reflection of that world produced, no matter how faithfully or accurately, through some other person's imaginative and interpretative act.* Source Ketchum, J. (2011) *Visual Geographies; Geoimagery. (p.139)*

Introduction

This chapter analyses and evaluates the data collected in the case study school by the processes outlined in the previous chapter. The case study research data results of the student perceptions of Antarctica derived by the individual students from previous encounters with the representations or the 'creative reflections' of others[369] are presented here. The recollected resources or the lens through which the research students had previously viewed the distant world of Antarctica are identified and the 'here'[370] of the students' perceptions are established. The chapter questions if and what the emotional connections students had gained from these sources on the 'reality' of the place of Antarctica.

The results of the students' reflections after their exposure to and critical reflection upon selected digital representations of Antarctica during the research process are determined. Critical reflections on the case study findings are discussed in relation to the pedagogy of place.

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369 Ketchum, (2011 p.139)

370 Our knowledge of the world is always from a certain standpoint, a certain location. We see it from here rather than from there'Allen, and Massey, D. (1995) *Geographical Worlds,* Oxford, Oxford University Press.

6.Analysis of the Student Data

As discussed in the previous chapter the line by line analysis of the data led to the creation and attachment of seven apriori place codes;-aesthetic cultural, natural, social, political, conflation and attitudes towards nature and three pedagogical apriori codes: location, locale and sense of place.

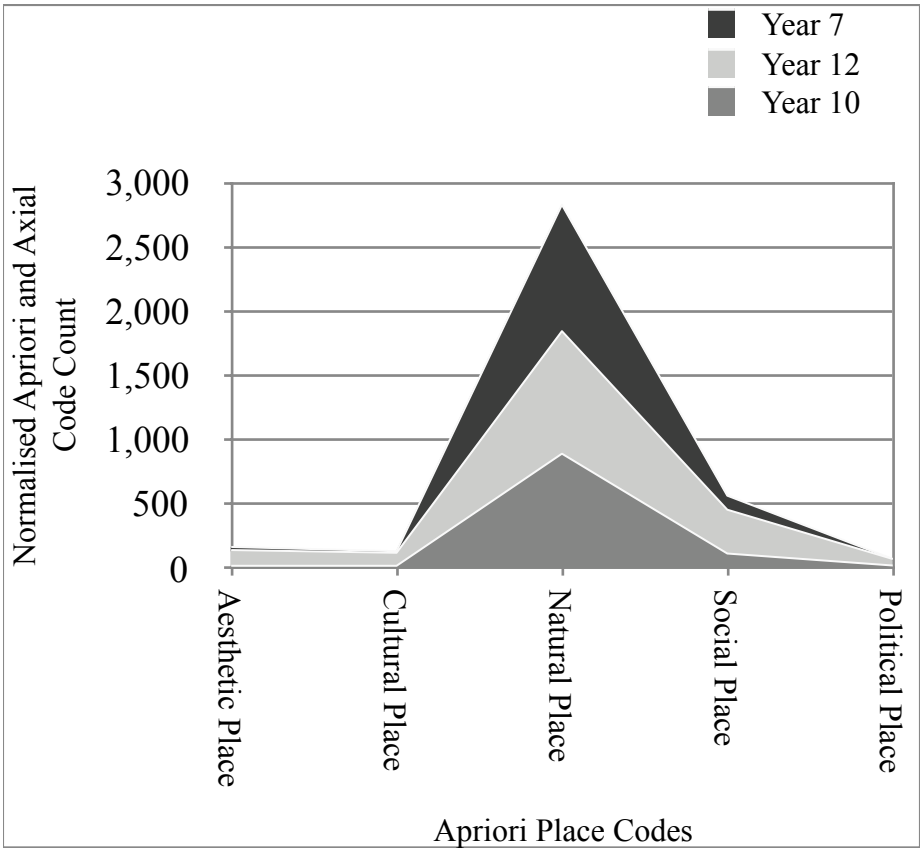
The software enabled scrutiny of the data through qualitative, mixed or quantitative data portrayed as numerical, percentage, logarithmic or normalised data. Normalised data is used due to the variation in size of the sample sets of students to highlight the data trends.[371] Analysis of the data enabled the answers to the research questions outlined in the synopsis and section 4.4 of the methodology to be stablished.

6.1.Apriori Code Analysis of The Student Concept Maps

The Chart in figure 6.1 portrays the dominance of extracts in the sample linked to the apriori code of natural place on the student concept maps across the age and ability range . It revealed the lack of aesthetic, cultural and political place perceptions displayed by these research students. These findings contrasted with the academic discourse of place discussed in chapters one and two adopted in the academic literature and until recent changes in the English National Curriculum.

[371] 22 year seven students, 9 year ten students and 8 year twelve students

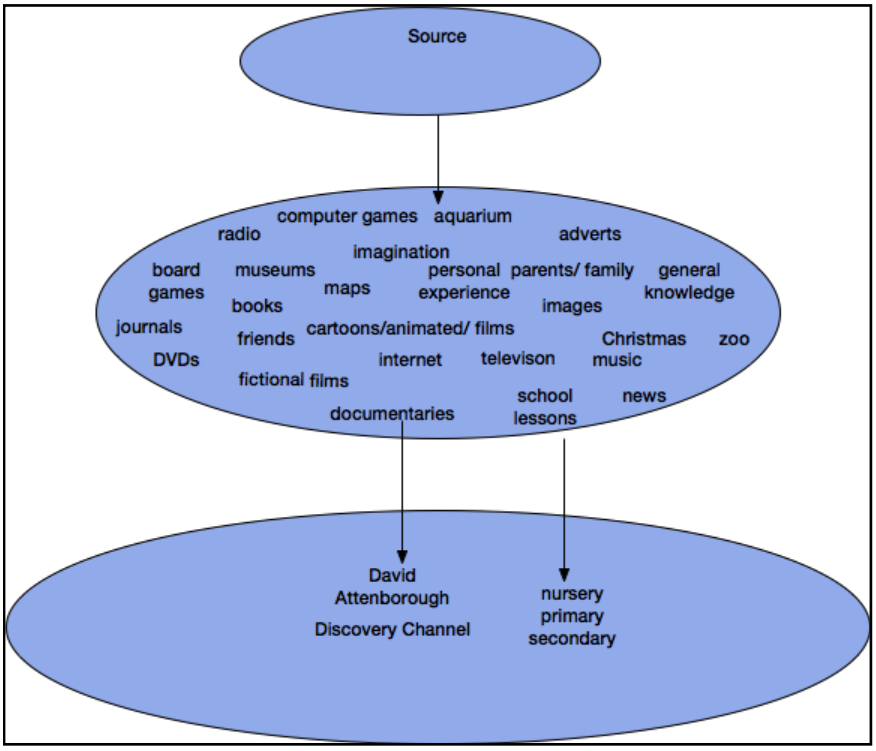
Figure 6.1:-The Research Students' Place Perceptions of Antarctica



6.2. The Sources of the Student Perceptions of Antarctica

To understand why this pattern emerged, the sources attached to the students' mind map diagrams were coded and analysed. The axial and sub axial code sources derived from the data are listed in figure 6.2. These can be classified as formal or informal sources. The wide variety of sources demonstrated that the students had fully embraced the idea that all the sources of representations that had contributed to the formation of their perceptions of Antarctica were valid.

Figure-6.2:Axial Source Codes for Student Perceptions of Antarctica



6.3.Documentaries as a Source of Perceptions of Antarctica

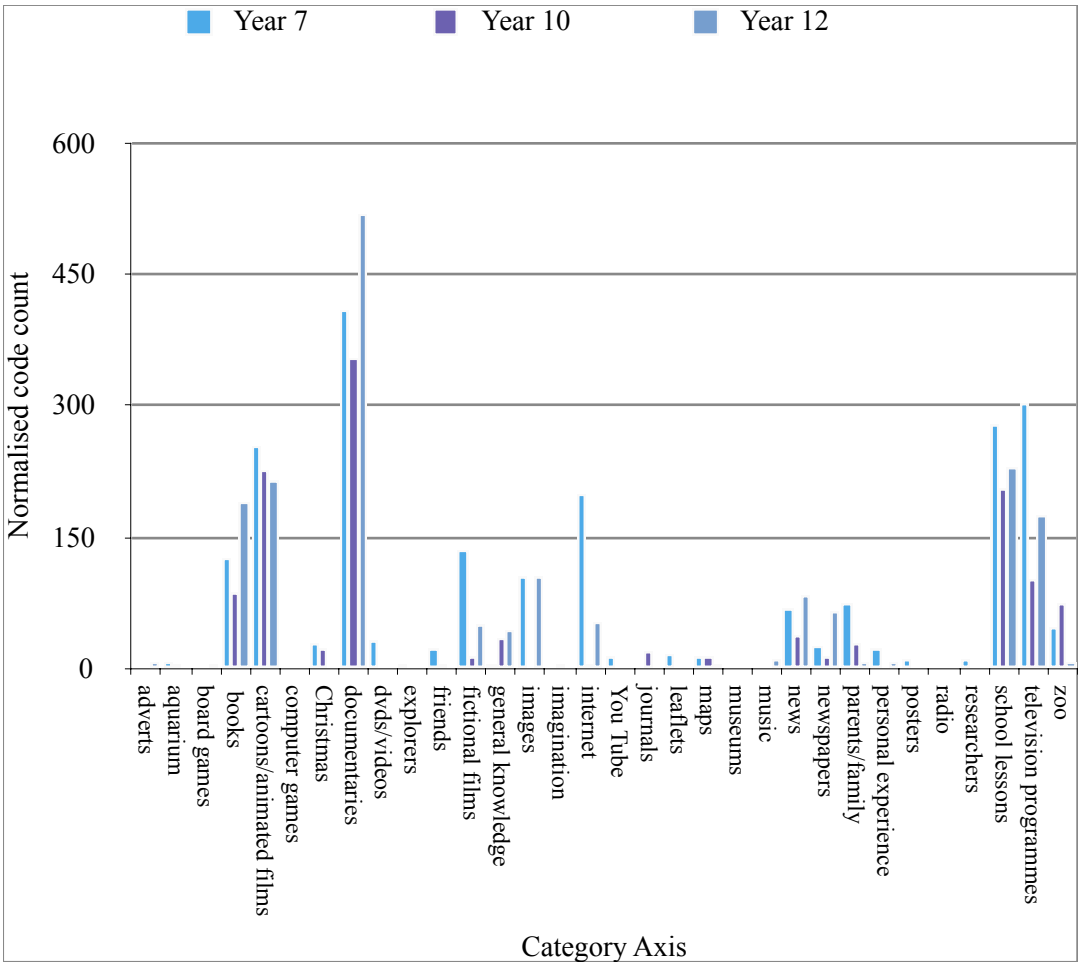
Figure 6.3 revealed the variations in sources of student perceptions of Antarctica across the age and ability range. Students can only encounter the distant place of Antarctica through secondary sources and as expected the analysis of the data revealed the major influence of digital film media[372] on place perceptions across the age and ability range. Documentary films formed the highest category of formal sources.

Analysis of the sources data from the mind maps revealed the case study students had experienced and recalled a limited selection of non fiction documentaries about

[372] In this research film media covers the categories of documentaries, the Discovery Channel films, DVD / video, cartoons /animated films, television programmes and these and other materials on You Tube. a video sharing distribution website

the continent of Antarctica. *The Blue Planet*, *Frozen Planet* and *Planet Earth* were referred to by 55% of the students across the year and gender groups. The other named documentaries were *March of the Penguins,* (2005), and *Polar Bear Spy on the Ice* (2010). *Discovery Channel a source of documentaries* was named but not the programmes viewed. This small number of named documentary source materials has major implications for the teaching of and learning about Antarctica. These films are produced as wildlife documentaries. They contain limited representations of the varied physical environments of Antarctica and the place acts as the decor to the wildlife story (Lefebvre,1991).

Figure 6.3:-The Sources of the Student Concepts of Antarctica



The narrative of these films often portray creatures in an anthropomorphic manner. The students' comments during the focus group discussion in session one revealed their belief in the objectivity of the images and a lack of critical reflection of the representations they had encountered.[373]

6.4. Indistinct Source Code Categories

At times students could not identify the precise title of some of their documentary sources. This was not surprising. Spectacular film sequences are repeated in different BBC wildlife documentaries such as an orca killing a seal. It is acknowledged that there is a blurred boundary between the code categories of documentary sources, DVD and video but these are merely linguistic descriptions for the mechanical storage or viewing of digital film materials. Only 2 year seven students used these phrases and the majority were presented by Keith who also named the Attenborough documentary as a source.[374]A one to one conversation with the researcher revealed this above average ability student could not elaborate further upon the precise titles. This issue did not alter the overall data trends.

6.5. Informal Sources

The significant influence of representations on these students' concepts of Antarctica from informal sources, especially cartoons/animated films and television

[373] See Sturken, M. and Cartwright, L. (2001) pp.12-20 for a discussion.

[374] In contrast to the pilot project, the size of the year seven sample meant it was impossible for the researcher to query every aspect of each students' mind map.

programmes was also indicated in the chart in figure 6. These informal sources provided the opportunity to engage with natural Antarctica on an emotional although often naive level.

For most English students their experience of 'being in' [375] snow, ice and low temperatures is very different to the 'reality' of a polar blizzard. However, embodiment in icy landscapes through adventure sports such as skiing in Norway or mountain climbing had provided direct encounters with extreme cold weather, snow, and movement through icy landscapes for a few of these English students. This had given these students an affective understanding of natural environments with some similarities to the place of Antarctica.

The issue of the identification of precise resources titles also applied to the category code, television programmes. However all the students who used the generic term TV referred to documentaries as a separate source of their perceptions. Again this did not affect the overall data trends. Significantly only a small number of named TV programmes influenced student thoughts and their concept formation of Antarctica. These were *Deadly 60*,[376] [377] *News Round*, *Blue Peter:-South Polar Challenge, Helen Skelton QI,*[378] *The One Show*,[379] *Country File*[380] and a 'bird

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[375] Heidegger, (1927)

[376] *Deadly 60* is focused on the biological aspects of wildlife, set within place but does not look at the context of place and merely named the location.

[377] The D*eadly 60 Pole to Pole* 2015 series set uses a digital globe to set each programme clearly in its own geographic location and connects it to the location of other places in the series. It makes some references to the landscape.

[378] QI is a quiz programme aimed at adults based on unusual facts about words,ideas or places.

[379] A weekday evening live magazine programme with topical stories and studio guests.

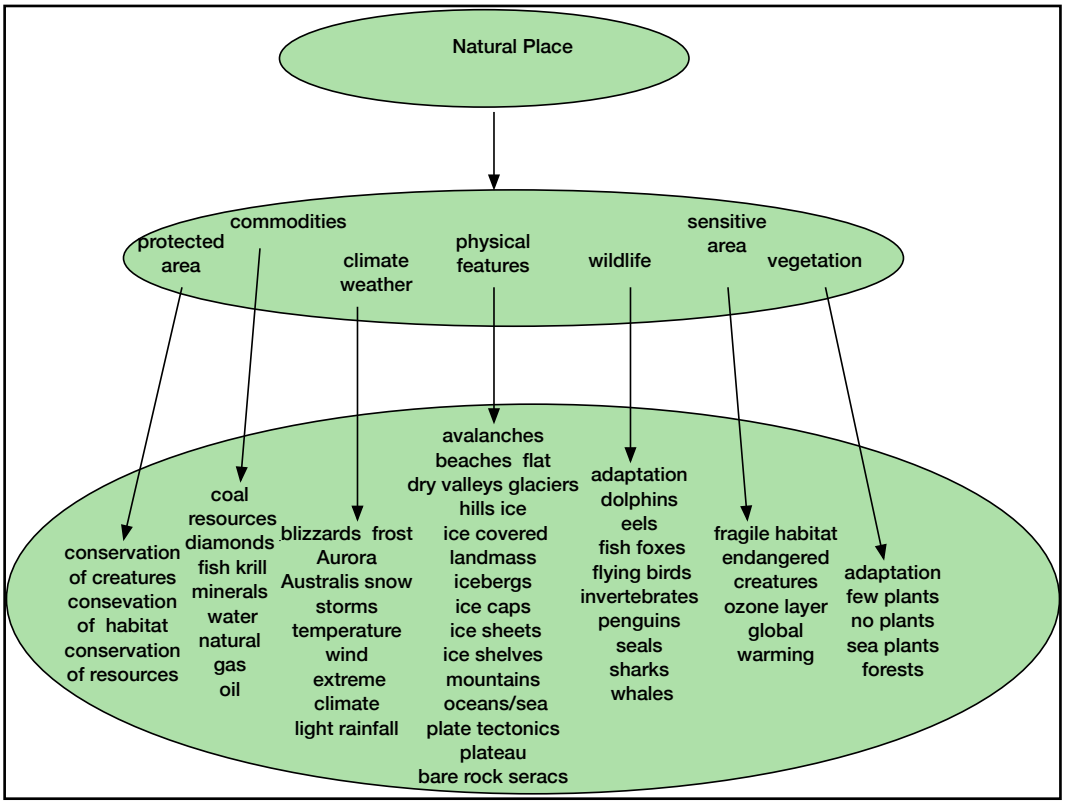
[380] A weekly BBC programme reporting on rural and environmental news and places in the UK.

programme' on the BBC.'

6.6.Natural Place Codes

The concepts and perceptions associated with natural place on the students mind maps were scrutinised and open codes derived and applied. Critical reflections on the coded framework led to revisions and the construction of the final axial code tree shown in figure 6.4 and the sub axial codes presented in figure 6.5.

Figure 6.4:-Axial Natural Place Codes



These natural axial codes were used to compare and contrast the student responses at an individual level (gender, age year group or ability) and across the descriptor sets.

Figure 6.5:-Natural Place Sub-Axial Codes

Climate/Weather						
daylight **rainfall\ (amount)** **temperature**	hours of sunlight hours darkness in winter dry desert driest place on earth	ultra violet light wettest place on earth				
Physical features						
ice **icebergs** **mountains** **ocean / sea**	deep deep snow covered freezes in winter	size jagged	 rocky very cold water	 high big waves	 cloud covered	steep
Sensitive Area						
impact of global warming	increase in sea height	melting ice				
Wildlife						
flying birds	breeding habits	characteristics	species	predators		
penguins	breeding habits	characteristics	species	birds	colonies	
seals	habitat	characteristics	species	predators		
whales	migrate	schools	species	travel long distances	diet	

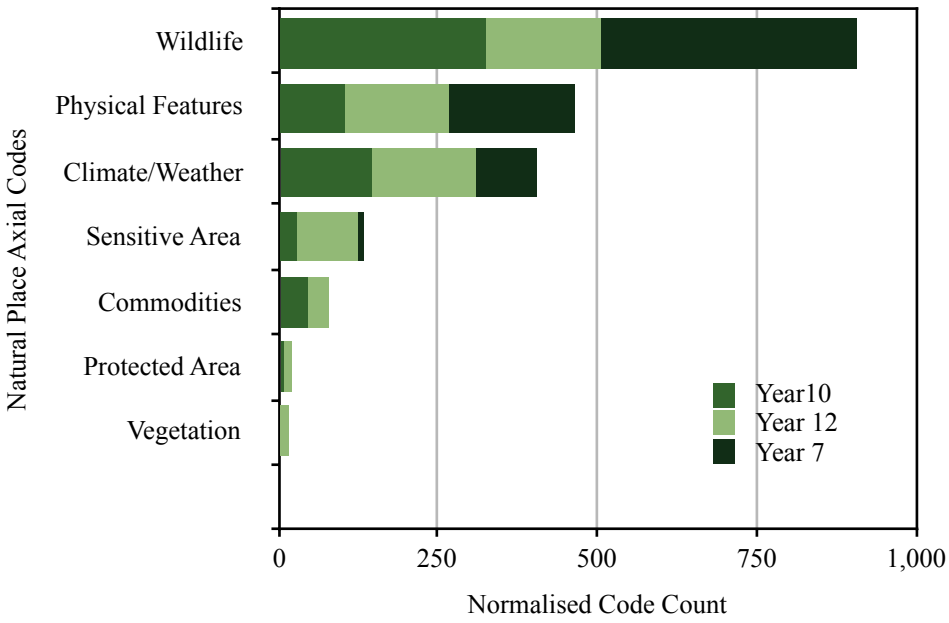
The use of sub-axial codes enabled the descriptive elements of the students' concept maps to be analysed but the software enabled the selection of data sets and the exclusion of the sub axial codes to prevent this descriptive data obscuring the patterns data analysis.

6.7.Natural Axial Place Code Analysis

Axial and sub axial codes were assigned to creatures that inhabit the Southern Ocean surrounding the continent because digital representations, many academic texts and the students consider this to be part of Antarctica. Analysis of the student concept map data revealed the majority of the perceptions were related to the locale of place.

Perceptions of natural place and within this extracts related to the axial code associated with wildlife predominated on the student concept maps as shown in figure 6.6. This was followed by perceptions of physical features and climate. The chart highlights how the case study students, especially those in year seven, possessed far fewer perceptions linked to a deep sense of place such as the sensitive, fragile, natural environment, the protection of Antarctic wildlife and habitat and the existence of natural resources.

Figure 6.6:-Axial Coded Perceptions of Natural Place

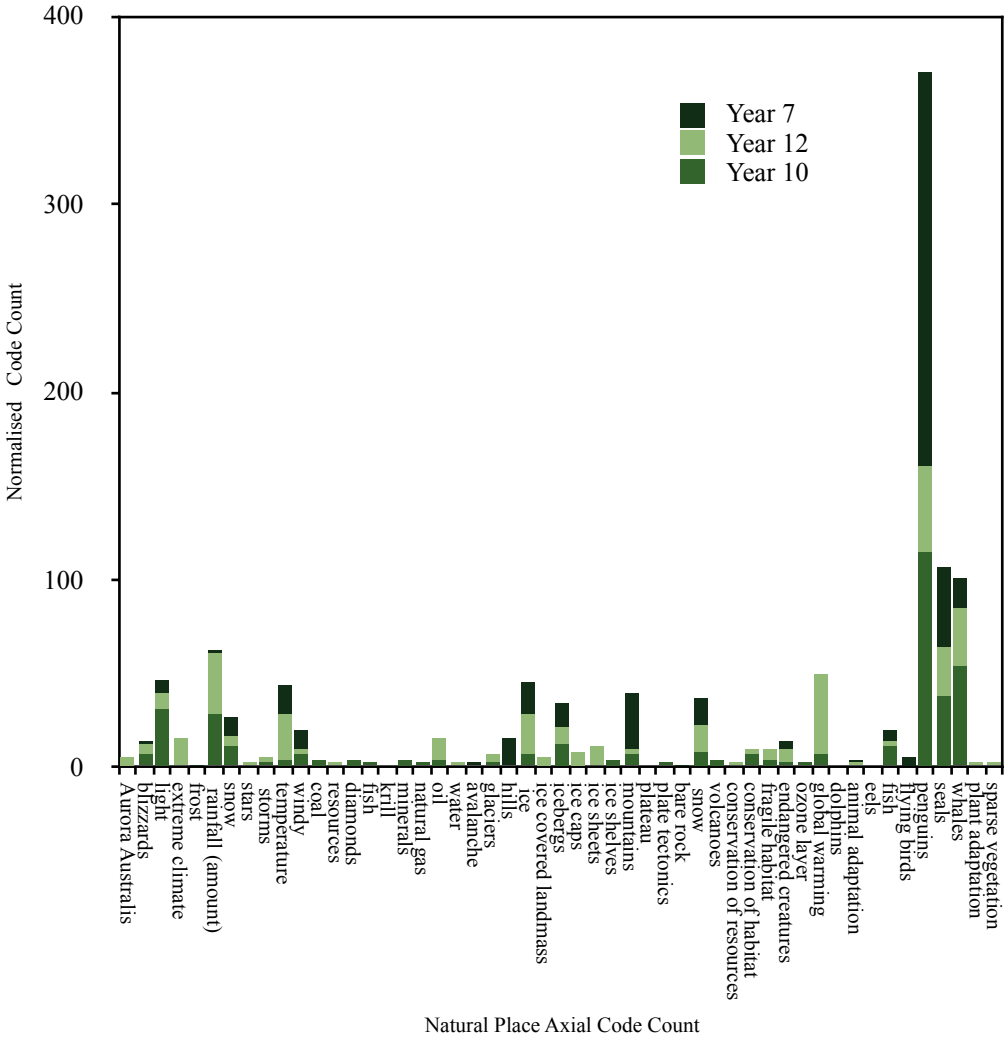


6.8. The Wildlife Axial Code

Data analysis revealed that within the wildlife axial code the perceptions of the signature symbol of Antarctica, the penguin dominated. [381] This is clearly demonstrated in figure 6.7.

[381] The researcher used the word penguin to begin the process of the drawing of the concept map for year 7. Penguins are ubiquitous images in English culture e.g. Christmas cards, adverts, children's toys and used on television shows. It was used because it was the strongest concept held by students in the pilot group.

Figure 6.7:-Sub Axial Coded Perceptions of Natural Place



6.9.Perceptions of Penguins

These penguin related extracts consisted of 219 year seven extracts, 115.14 year 10 extracts and 45.17 extracts for year 12. [382]The majority of these coded extracts across the ability range described penguins at a basic level of 'objective reality.' The perceptions were mainly related to the characteristics of penguin and many of these were naive extracts such as penguins are black and white (13), eat fish (29.5) swim and waddle (21). The presence of these descriptive responses unsurprisingly

[382] The code counts presented in the research have been normalised to enable comparison across the different size year groups.

decreased with the age of the students. They consisted of 95 year seven extracts 44.29 year ten, and 2.66 year twelve. These descriptive perceptions were not elaborated upon in the focus group discussions. They were directly attributable to the extensive sources cited on the concept maps. Normalised figures indicating the sources of the students' perceptions of penguins are given below across the source and student age range are given below.

Table 6.1:-The Sources of Students' Perceptions of Penguins

	7	10	12
adverts	1	0	8.74
aquarium	6	3.79	0
board games	2	0	5.83
books	116	87.23	192.26
cartoons/animated films	219	197.21	212.65
computer games	3	0	0
Christmas	28	22.75	0
documentaries	355	348.91	509.78
dvds/videos	31	0	0
explorers	5	0	0
friends	23	3.79	0
fictional films	135	18.96	49.52
general knowledge	0	34.13	43.7
images	103	0	101.96
imagination	0	3.79	0
internet	150	3.79	52.43
journals	0	18.96	0
maps	11	15.17	5.83
museums	0	0	2.91
music	0	0	11.65
news	62	37.92	84.48
newspapers	25	15.17	64.09
parents/family	69	30.34	8.74
personal experience	26	0	8.74
posters	11	0	0
radio	1	0	0
researchers	11	0	2.91
school lessons	158	136.53	177.7
television programmes	298	102.4	171.87
zoo	45	64.47	8.74

The majority of the year seven students had obtained their perceptions of penguins

from their personal experience of informal resources including documentaries, [383] animated films/cartoons especially *Happy Feet* and fictional films,[384] TV programmes, [385] and story books. In the year seven focus group, one student discussed how she loved penguins and 'looked for pictures' of them all the time. Despite the students confidence in their own knowledge the students descriptive naive perceptions emphasised the need for critical engagement with representations and disciplinary knowledge.

A small number of the year seven and most of the year ten student extracts demonstrated a deeper knowledge of the penguin species. This was ability but not gender related.The sources given for this factual knowledge were various including Richard Attenborough documentaries, *March of the Penguins* and TV programmes and the *Discovery Channel*. An example of a more 'scientific 'response was provided by a higher ability year seven girl. When she stated 'penguins have 'webbed feet, lay eggs, the dads look after the eggs, they glide on the snow and usually stay in groups.'[386]

The year 12 student concept maps simply acknowledged that penguins were part of the place of Antarctica.[387] Their extensive citing of sources and their comments in the focus group indicated they were very familiar with wildlife documentaries but they

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[383] These documentaries had been watched at home and in school.including those screened on the Discovery Channel

[384] These were *Happy Feet 1* and *2, Surf's Up, Pingu, Scooby Doo, Madagascar, Ice Age (1,2,3)*

[385] *The One Show*, *Country File* and *Deadly 60.*

[386] The informal sources she recorded were:-cartoons, animated films, Christmas movies, Deadly 60, the *Discovery Channel* and Ben Jones, an American cartoonist and comedian.

[387] The only other identified penguins species were Gentoo and King

also drew on strong images from animated films. The older male students had also gained knowledge from the TV programmes *QI* and *Deadly 60* TV programmes[388] A finding reflecting the emphasis of the student sources especially the digital images on the life cycle of the penguin in their colonies was that Peter a high ability student in year ten was the only student who made any link between penguins and the physical landscape of place. He commented penguins 'breed on the land because there are no predators.' Peter and Andy (year ten) and Penny (year 7) recognised 'penguins are an endangered species.' The boys cited documentaries and school lessons as sources and Penny talked of a research project she had conducted in primary school. Andy (year ten) and Colin (year 12) referred to the impact of over fishing on the penguins. The ecological message in the story of Happy Feet 1 (viewed by 85% of the students) had been forgotten[389] by all but Andy. However Mumble the penguin chick remained clearly in the majority of the students' memories.

In contrast to the pilot school, only one concept map recorded penguins as 'cute'. However in the year seven focus group the students revealed they held anthropomorphic perceptions towards penguins which they had hidden in the more formal classroom setting. They thought they were cute 'because of their eyes,' 'they are small,' 'they waddle about' and 'they are funny to watch.' These hidden perceptions stem from the visual cultural tropes found in the penguin representations they had encountered, especially images of Mumble in *Happy Feet.*

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[388] Deadly 60 and QI

[389] The end of this film has a rather confusing sequence of images involving protest meetings and raising money for the protection of the environment. The hidden environmental message of the film becomes lost.

Researcher analysis of popular books about penguins for young English children revealed a continuum of representations of penguins. There are non fiction accounts based on the reality of Antarctica such as *Antarctica Land of the Penguins* ,by Peter and Angela Scott (2005) This has colourful images of landscapes and accurate information about the Antarctic environment and penguins including an image of a skua eating a dead chick. *The Emperor's Egg* by Martin Chapman (1999/2008) is a realistic story with drawings of the landscape and the Emperor penguin breeding cycle and the chick has over large, appealing eyes. Finally the story book *Penguin Pete* (Pfister, 1987) aimed at young children represents the opposite end of the continuum. Pete the short, plump penguin waddles, cannot fly and swims but he behaves like a human child (playing hide and seek, laughing and crying) in a soft hued background landscape of ice and water. The cartoon character Pingu also behaves like a child and playful penguins adorn Christmas cards.

Anthropomorphising the penguin even enters the formal school curriculum. Widdowson (2002), a school text book author, required lower secondary geography students to empathise with the penguins and 'step into their padded feet and examine the issues and the future of the continent from the birds' perspective.

6.10. Student Perceptions of Other Antarctic Wildlife Species

The concept maps disclosed the lack of student perceptions of the other wildlife species found in Antarctica. Seals were the second highest category of perceived Antarctic wildlife (105 extracts) but these were noted by only 45% of the sample

students. There was a lack of detailed scientific knowledge of seals and simplistic descriptions prevailed. Named species were given by only 1 year 7 and 2 year 10 students. The latter also knew that leopard and elephant seals were predators of penguins.

Blue, right, fin, sei, minke and humpback are all species of whales found in Antarctic waters but the majority of the whale linked extracts (54) across the age, gender and ability range provided little evidence of scientific knowledge of the species. Most of these student perceptions about whales were gained from digital film sources (50)[390] with school (8) and books (7) only making a small impact on perceptions. A minority (19%) of the case study students recognised that killer whales/orcas and the humpback whale were found in the ocean waters around Antarctica and 12% recognised orcas as predators of seals and penguins. These student perceptions of whales were attributed to the viewing of the film *Frozen Planet*. In contrast to the penguin species, descriptions of whales were absent except for a naive one provided by a year seven student.

Kirsty, a year ten female student, recognised 'that people eat whales' but apart from this there was no other evidence of student awareness of the controversial issue of past or present whaling activities in the waters around Antarctica. The research students lack of socio-cultural knowledge about whales is directly attributable to the sources from which the students had derived their perceptions of whales. They are given human characteristics in animated films but no personality. Documentaries often focus on the whale as part of the Antarctic food chain. The images of a Blue

[390] documentaries (25) the informal films of Pingu, Happy Feet, Ice Age and Madagascar and Snow Dogs (18) videos/DVD (3) fictional films(4)

whale in the film clip in session two entranced the year seven students leading one to comment ‘whales are elegant calm animals that are loud and beautiful.’

Even less recognition was shown on the concept maps of these students about other Antarctic species. There are thirty-seven flying sea birds native to Antarctica, but just one student (year seven female) noted there were birds other than penguins. Extracts from the concept map of a female year 10 student showed that she possessed a good understanding about sharks in Antarctic waters. She attributed this to watching TV programmes about fishing with her father and grandfather, demonstrating how informal resources that refer to place as well as wildlife can create perceptions of a distant place.

These case study findings demonstrates that the higher order thinking about the wildlife of Antarctica was not age or ability related. It was linked to individual exposure to informal and formal representations. This lack of a deeper understanding about Antarctic wildlife species and therefore the Antarctic food chain has major implications for the ability of students to critically reflect on the impact of climate change on the continent. Formal schooling had made no impact on 34% of this sample of students’ perception of the wildlife of Antarctica.

6.11.The Conflation of Wildlife Species

The conflation of species meant that either the habitats and landscapes of different extreme cold places were fused together in the students’ imaginations or that some species were believed to inhabit both the icy places of Antarctica and the Arctic and

Alpine Tundra. Table 6.2 demonstrates the extent of student conflation of animal species across the age and ability range.

Table 6.2:-The Conflation of Animal Species

Year and Gender	CAT/ Grade	Foxes	Husky Dogs	Polar Bears	Sea Lions	Walrus	Wolves
Y10 F	B			2.5			
Y10 F	C			2.5	2.5		
Y10 F	C				2.5		
Y12F	A	2		2			
Y12F	B/C			4			
Y12M	B						
Y12F	B			2.5			
Y12M	C			5			
Y12M	C			2.5			
Y7M	4					2.5	
Y7F	4			5			
Y7M	4+			2.5			
Y7F	4+			10			
Y7F	4+		2.5	2.5			2.5
Y7M	5			10			
Y7M	5		2.5	7.5			
Y7F	5		2.5	7.5		2.5	
Y7F	5			7.5		2.5	2.5
Y7M	5-			3.33			
Y7M	5-		2.5	2.5			
Y7F	5-			7.5		12.5	
Y7M	5-					5	
Y7F	5+						
Y7F	5+		5	5			
Y7F	5+			2.5			
Y7M	5+					7.5	2.5
Y7M	5+			5		2.5	2.5
Y7F	6-					7.5	

A noteworthy finding was that conflation was high especially for the iconic Arctic

species. 50% of the student sample across the age and ability range placed the polar bear in Antarctica. The seeds for this conflation lie in the western story books and animated films produced for young children as shown by table 6.2. This is normalised data but it reveals the overall trends in the sources of this extensive polar bear conflation presented on the concept maps. Cartoons, animated films and fictional films as expected were the main sources of this species conflation. These contain representations falsely depicting penguins and polar bears in the same locale. In the year seven and year ten focus group the students discussed Pingu the Penguin[391] and the Chilly Willy,[392] cartoons and the animated films Ice Age 1,2,3. Frequently screened, they contain conflated species images which encoded at a young age have persisted in the students' perceptions.

Books and images were also cited as a major source of this species conflation. These are encountered at a young age and reinforced by re-reading. Students in the focus group discussed treasured childhood books, The most frequently cited was *Penguin Small* (Inkpen, 1992/2006). In this book Pete the penguin is left behind in the Arctic when all his penguin friends leave because 'the polar bears have been up to their nasty tricks again.' His friends head to the South Pole 'to make their home where no polar bears could bully them!' The conflation of the two polar environment by the students is indicated by the number of concept map extracts linking documentaries to this these conflated perceptions.*Frozen Planet, Polar Bear Spy on the Ice* (2010) and

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[391] Pingu, lives in a polar region now stated as Antarctica on the Pingu website but present in the cartoons are an Inuit and igloos

[392] A penguin living in Alaska with polar bears in The New Woody Woodpecker Show 1999 onwards based on cartoons created by Walter Lantz in 1958 and produced by Universal Cartoon Studios shown on BBC CBeebies and YouTube

*March of the Penguin*s,in the focus group. In the focus group the year 12 students revealed their species conflation had been reinforced by a science lesson in the secondary school about animal adaptation. They had viewed an Attenborough documentary which has sequences that rapidly move from pole to pole.

Table 6.3:The Sources of Students' Conflated Perceptions of Polar Bears

	7	**10**	**12**
adverts	1	0	8.74
aquarium	6	3.79	0
board games	2	0	5.83
books	116	87.23	192.26
cartoons/animated films	219	197.21	212.65
computer games	3	0	0
Christmas	28	22.75	0
documentaries	195	231.34	393.26
dvds/videos	31	0	0
explorers	5	0	0
friends	23	3.79	0
fictional films	135	18.96	49.52
general knowledge	0	34.13	43.7
images	103	0	101.96
imagination	0	3.79	0
journals	0	18.96	0
leaflets	17	0	0
maps	11	15.17	5.83
museums	0	0	2.91
music	0	0	11.65
news	62	37.92	84.48
newspapers	25	15.17	64.09
parents/family	69	30.34	8.74
personal experience	26	0	8.74
posters	11	0	0
radio	1	0	0
researchers	11	0	2.91
school lessons	158	136.53	177.7
television programmes	298	102.4	171.87

Some of the year ten students had studied a module on extreme climates for GCSE Geography. The resources produced to assist teaching for this module could lead to conflated student thinking about polar places. For example in *Life on the Edge* by Jane Ferreti and Ruth Totterdell (2011), extreme environments are regarded as a continuum and the learning activities ask them to consider combined representations of polar environments. In this book, Antarctica is missing from a map entitled 'Where are the most sparsely populated places?' Resources are provided to enable students to study issues in the Arctic region only. This resource explores how people live in Northern polar environments but it does not mention the temporary residents of Antarctica.

The zoo was a source of conflated Antarctic species perceptions indicating the need for zoos not just to name the countries of origin of a species but to illustrated this with a map and information accessible for children and young people to set the species within polar places if students are to understand the place issues affecting species conservation.

A comment made in session one highlighted how wildlife documentaries can lead to knowledge of the actual species but confusion about their precise location. John (year 10), struggling to identify the location of a documentary scene shared his thoughts. 'I watched *Planet Earth* but I'm not sure if it was the Antarctic or the Arctic I can remember some whales like in the sea and a penguin on the ice and they knocked it off. It was the Arctic.' Overall John's concept map conveyed a weak sense of the place of Antarctica.

The other conflated species were sea lions, foxes, wolves, walrus and the husky

dog. This conflation was age related with the majority of these excerpts provided by the year seven students.[393]

Southern sea lions and walrus are found in New Zealand's Sub Antarctic Islands and South America but not on the Antarctic continent.The year ten students who incorrectly placed sea lions in Antarctica as food for the predator orcas, stated they had gained this knowledge from the documentaries, *Frozen Planet,* (2011) *Blue Planet* (2001) and *Trials of Life* (2009). All these films have haunting scenes of sea lions being chased and killed by orcas in the Arctic and images and narratives of colonies of sea lions in Patagonia.[394]

The year seven students who placed the walrus species in Antarctica claimed they had gained their perceptions from animated films and cartoons, books, *Blue Peter*, school, *Deadly 60* and *Planet Earth*. In the focus group discussion, two year seven students talked about the walrus characters from *Happy Feet* and the *Ice Age* films but in fact these cartoon figures are meant to be elephant seals.

Wolves were perceived to be Antarctic species by some year seven students. A wide range of informal resources, the *Discovery Channel* and *Frozen Planet* were cited as the source of these inaccurate perceptions, demonstrating how place conflation can be created by documentaries with images that move quickly from one pole to another.

Husky dogs were thought to be wild creatures of Antarctica in 5 year seven

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[393] Questioning by the researcher confirmed these husky dogs were perceived to be native wild creatures

[394] Images on the Australian and the New Zealand Antarctic web sites show the endangered Hooker sea lions but none of the students in the sample had viewed these sites.

extracts. The concept maps and focus group discussion revealed this thinking stemmed from the informal sources of *Pingu*, *Ice Ag*e the *Discovery Channel*, books on huskies and unnamed Christmas film, the One Show and the formal sources of leaflets, zoo and primary school. [395] Critical engagement with their peers in the focus group changed this thinking. The researcher also informed the students how technological changes in transport had made the use of dogs redundant and that a ban was placed on husky dogs in Antarctica in 1991 because of the risk they posed to wildlife.

6.12.Changing Students' Perceptions of Wildlife

The year twelve students were embarrassed to discover during the focus group discussion they possessed conflated perceptions about Antarctic wildlife. Through the research activities their unconscious perceptions were made conscious, cognitive dissonance was created and their perceptions of the place of Antarctica changed. These findings on species conflation demonstrate how when students are learning about aspects of Antarctica within the school curriculum it is essential to create cognitive dissonance to change naive perceptions. It highlights the need for teachers to critically reflect upon the selection and use of digital resources when teaching generic concepts such as species adaptation. Curriculum themes, issues and representations for the study of the Arctic and the Antarctic environments need to emphasise individual places.

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395 Probably Eight Below Zero (Disney 2006) and Call of the Wild.The story of how a pet dog Buck turns wild in the Yukon, 1935;-director William A. Wellman, 1976;-TV Movie, director Jerry Jameson, 2007;TV Movie 2007, director, Peter Svatek, *Call of the Wild 3D,* director Richard Gabai, 2009

In session two, the students encountered film clips from *Frozen Planet* portraying different penguin colonies. These were made by wildlife film makers aiming to educate and entertain an audience. One year seven student commented 'it was good because it was easy to understand.' With the place matrix as a scaffold for recording ideas and reflection on the representations, the students formed new perceptions about penguins in Antarctica. These included an awareness of different species and factual knowledge of the emperor and chin strap penguins life cycle and understanding of the habitat.

All the students, but especially the year seven students, displayed strong reactions to some of the film images representing the penguin life cycle. There were gasps of surprise, horror and amusement during the screening.[396] The year seven recorded perceptions such as 'feeling sad' and 'upset at the deaths of the chick due to blizzards.' This illustrated the power of emotions on perceptions as discussed in chapter two by Tuan, Relph and others. The older students' familiarity with the film clips enabled a more critical engagement with the representations. They recognised that the penguin narrative, although presented as a positivistic, scientific account ,'personified the penguins as humans,' 'anthropomorphised the birds' and 'depicted them as comical.' They noted that the documentary 'played on human sentiment' and there was 'the emotional impact of the 'baby penguins stuck in the snow' and 'the sad images of the lost chicks.'

Unfortunately the hidden anthropomorphism in the representations reinforced

396 Ideally in a teaching situation, the clips would be shown twice but it was not feasible in the time constraints set by the school. One viewing would allow them to engage with the representations and after critical engagement with peers to record their thoughts.

naive cultural perceptions in the younger students. For example, the penguins were ‘cute, funny cuddly and flightless,’ ‘smart penguins,’ ‘clever,’ ‘the sea must be very cold for them,’ ‘penguins are funny, when they walk,’ ‘sweet’ and ‘very busy.’

These anthropomorphic perceptions of penguins were interwoven with scientific facts. Different facets of the life cycle stood out for individual students. These included ‘the females came back with the food, the males take over the eggs, Emperor penguins breed where they are free from predators,’ and ’the chin strap penguins come to breed in the springtime,’ The film clips increased the depth of student perceptions presented by the year ten and seven students about whales and elephant seals. 25% of the latter commenting on the size of whales including enormous, massive, big and wow!

In session three a film clip was shown with invertebrates being collected for quantification and classification in scientific research but only 5% of the students recorded krill (zoo plankton) or other invertebrates on the place matrix. It was the ice breaker research ship and the scientists that captured student attention not the marine invertebrates.

The screening of the film clips introduced the students to the different species of birds. Again factual perceptions were recorded but for year seven students strong affective perceptions were linked to the chase and killing of a snowy petrel by a skua. These powerful images of a predation were enhanced by music and the narrative and they made an emotional impact on the students. The representations shocked and scared the younger students. This highlights how sanitised, fantasy representations for younger children rarely present the reality of nature. Affective perceptions were

recorded such as ‘the bird being killed was sad and scary,’ and ‘upsetting.’ The skuas were perceived to be ‘strong,’ ‘with powerful beaks,’ and ’vicious’, ‘mean,’ and ‘horrible.’ The film clips fully engaged the older students’ attention but because they were familiar with predation images, they recorded factual not emotional perceptions about the event. The younger students had become ‘vicarious insiders’ entering into the place through the film, whilst the older students remained as detached observers (Relph 1976).[397]

The digital images were successful in changing student perceptions of Antarctic wildlife. However, the research findings suggests that for the greatest cognitive change, critical engagement with affective film clips, especially with the younger students, should be used along with learning activities to enhance holistic disciplinary knowledge.

6.13.Perceptions of the Physical Features of Antarctica

The topography of Antarctica varies from high mountain ranges such as the Ellsworth Mountains, including Mount Vinson the highest peak on the continent, the active volcano Mount Erebus, the high Polar Plateau,[398] ice shelves, glaciers and dry valleys. The students’ perceptions of the landscape were described in the 153 concept map extracts portrayed in table 6.4.

397 See section 2.15

[398] Much of east Antarctica consists of a high domed polar plateau which covers an area of 5 million km2 around the South Pole with an average elevation of 2800m (Brooks, et al 2007) and a crest at 4,093m at Dome A (80o 22’S, 77o 32’E).Summerhayes, C. (2009)

Table 6.4:-Perceptions of The Physical Features of Antarctica

	Year 7	Year 10	Year 12
avalanche	3	0	0
dry valleys	0	0	0
flat	0	0	0
glaciers	0	2.21	5.31
hills	15	0	0
ice	17	6.64	21.26
deep	0	0	2.66
ice covered landmass	0	0	5.31
icebergs	13	13.29	7.97
ice caps	0	0	7.97
ice sheets	0	0	10.63
ice shelf	0	4.43	0
mountains	32	11.07	2.66
ocean / sea	19	6.64	7.97
plateau	0	0	0
plate tectonics	0	2.21	0
bare rock	2	0	0
seracs	0	0	0
snow	16	8.86	13.29
volcanoes	0	4.43	0

The majority of these extracts revealed how students across the age and ability range possessed some knowledge of the physical geography of the continent. Antarctica was perceived to be a place of snow and ice surrounded by very cold water ocean or sea containing ice bergs. Significantly, none of the students thought Antarctica was flat. The expected tropes of ‘flat’, empty, iced covered plateaus frequently found in the earlier literary representations such as those discussed by Elizabeth Leanne (2012) and in chapter 2 of this research were missing from the case study student concept maps.

The chart in table 6.4 reveals perceptions of snow covered mountains or hills were the physical features most frequently mentioned by 50% of the students. This was discussed in the year seven focus group, one commenting ‘you can see mountains

everywhere.' Technical innovation in filming in polar environments and print production had assisted these students in developing these perceptions of a mountainous landscape. A year seven student noted in the focus group 'when I did my research in primary school I was watching something and there were loads of mountains in the background.' The digital sources given by the students for these perceptions included the *Blue Peter* programme *Helen's South Polar Challenge* (2012), James Cameron films (a film director and explorer), Ben Fogle's *Race to the Pole* and Attenborough documentaries. Other sources were maps, school lessons and photos.[399]

Table 6.4 draws attention to the fact that very few of the students realised Antarctica was volcanic and none described the polar plateau. 3 year seven students of average ability did not visualise any aspect of the landscape of Antarctica on their concept map. Without this knowledge they would not be able to fully understand the landscape of Antarctica.

The film First Ascent, promotes a mountaineering guiding and clothing company. It meant that high mountainous terrain became part of the landscape perceptions of Antarctica for all the students. Their comments included 'it is a contrast of wide open spaces and mountainous terrain,' 'the mountains are on a large massive scale and are impressive,' ' amazing scenery,' ' a very difficult landscape to navigate and travel over. 'the mountains are beautiful and powerful,' 'high very high' and 'high jagged mountains.'

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[399] In one of the school geography classrooms there was a large poster image of Mount Erebus published by the Geographical Association

The vivid representations of mountainous landscapes brought a new aesthetic perspective to the students' perceptions of Antarctica. Their descriptions included:-'an awesome, fantastic place,' a challenging place to go for outdoor sports' 'difficult mountains to climb', a 'great place for tourism,' 'shows people you can have a good time there,' and 'it looks like a wonderful place to visit.'

The higher ability students, particularly the older ones, identified the different cultural attitudes and values held towards this landscape (see section 2.37 and Cox 1997). This thinking was revealed in reflective comments such as:-

- 'unlike David Attenborough who wants to conserve the environment, the mountaineers want to be the first to conquer the mountains,'
- 'in comparison with David Attenborough they viewed this as something that is supposed to be there for them to use'
- 'nature is a place to be conquered' 'this video suggests Antarctica to be a commodity for people to use it as an adventure playground,'
- 'nature is seen as a place for enjoyment when skiing down slope,'
- 'nature is a place for adventure.'

These and many other student comments recorded on the place matrix demonstrate that film clips portraying different values and attitudes can provide opportunities for powerful student learning about a place and enhance their critical thinking skills.

Only a few of the students realised the film was an advert. They commented, it was made 'to show people what hiking they can do,' made by mountain guides' and 'to promote their clothing brand.' The very positive portrayal of the landscape was picked up by the students, for example 'the film makers love the place.' These findings highlight that indirect experience of a distant place through carefully selected

representations can be effective in changing perceptions across the age range.

6.14. Icy Landscapes

75% of the case study students recognised that most of Antarctica consists of an iced landscape. The coded concept map data disclosed that the older students possessed a more detailed knowledge of the icy Antarctic landscapes. All of the year 12 students described either an ice covered landmass, ice caps or ice sheets. The lack of in depth understanding of the ice by the year seven students could be traced to the representations they had encountered.

The early polar explorers recognised the beauty of the ice, the colours of the ice and conducted research on the different types of ice. The extent, colours, shapes and variety of ice are striking to tourists and scientists who visit the continent today. These perceptions were absent from most of the student concept maps. A few of the year 12 students possessed a deeper aesthetic sense of the natural landscape of the icy landscape. They wrote of 'white expanses' and 'wide plains of ice.' One year seven male student wrote of 'sublime white mountains.' These student had gained their perceptions from photographs and tv programmes. Overall the majority of the students' concept maps were missing this sense of the ice.

In session two a dramatic animation of the seasonal formation and melting of sea ice in *Frozen Planet* was successful in enhancing 50% of the students' perceptions of the ice, the extent of the ice and the seasonal nature of the ice.

Ice shelves are awesome features of the icy Antarctic landscape.[400] Glacial scientists, Cook and Vaughan have documented how 'in recent decades, seven out of twelve ice shelves around the Antarctic Peninsula (AP) have either retreated significantly or have been almost entirely lost.' As these authors noted 'ice-shelf retreat is an icon of climate change science' (2010 p.95). Despite this only Andy and Peter (year ten) referred to ice shelfs. Andy, knew of their existence from maps and Peter named the Ross Ice Shelf and described it as the largest in the world. He had gained this knowledge through 'personal interest' from books and maps, photographs, TV and the documentary Frozen Planet. His concept map and discussion in the focus group displayed a positivistic scientific attitude towards the natural landscape of Antarctica.

Glaciers were only recorded in 3 concept map extracts, a year ten female who had gained her perceptions from school lessons and extracts from 2 male year 12 students (TV and general knowledge). Traversing the Antarctic glaciers and narratives about these journeys were noteworthy aspects in the diaries of the heroic explorers. There are several possible reasons why the majority of these students failed to perceive glaciers as part of the Antarctic landscape. The coding and focus group revealed that the case study students were unfamiliar with the photographic images and struggles of Scott and Shackleton and others on the Beardmore Glacier. Modern explorers encountered by the students on tv programmes are usually depicted crossing the Polar Plateau not on Antarctic glaciers. Glacier calving leads to dramatic iceberg formation

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[400] Defined by Bethan Davies as 'a thick, permanent, floating sheet of ice that is derived from terrestrial *tributary* glaciers.' at http://www.antarcticglaciers.org/students-3/glossary/ accessed 28/12/2015

as shown in figure 6.8 but just 34% of the concept map extracts across the age and ability range recorded that icebergs were part of the Antarctic landscape. Extended responses were negligible with only 3.2% of the concept map extracts containing extended perceptions about these spectacular features. As with glaciers it is difficult to convey the height and scale of icebergs in small images.

Figure 6.8:-Glacier Calving on The Antarctic Peninsula

Source:-Teresa Lenton 2007

This is demonstrated in figure 6.9 where the zodiac used to create a sense of scale is almost invisible. The sky is a more intense colour than the actual scene because no filter was used when taking the photograph and consequently some of the blue and green colours of the icebergs were lost. Without input from the teacher, at this small scale the icebergs in the background could be perceived as land. The image demonstrates the difficulty of creating an aesthetic understanding of glacial features. The film clips did not focus on icebergs and there was no increase in the student perceptions about the aesthetic aspects of icebergs. Some of the younger students became more aware of their size.

In the film clips used in sessions two and three, the representations of glacial features of the landscape were present but they were incidental to the main narrative and acted as just as a backdrop to scenes. These findings demonstrate the need for students to engage in learning activities including disciplinary knowledge about these icy physical features of the landscape. This should be accompanied by the viewing of films clips to set these features within the natural and social context of Antarctica.

Figure 6.9:-Icebergs on the Antarctic Peninsula

Source Teresa Lenton 2007

6.15.Aesthetic Landscape

Chapter two discussed how explorers, travellers, artists and scientists have produced images and written many positive and negative superlatives about the Antarctic landscape. This is demonstrated by the words of the geologist, Edgeworth David, written in Antarctica for the expedition journal, *Aurora Australis*. He gained his perceptions of the Antarctic landscape through his embodied experiences[401] on the

[401] See section 2.7

continent during the British Nimrod Antarctic Expedition. In 1908, he participated in the first climbing expedition to summit Mount Erebus.

> Erebus is the castle keep. Its flanks and foothills clothed with spotless snow, patched with the pale blue of glacier ice, its active crater crowned with a spreading smoke cloud. Erebus not only commands a view of incomparable grandeur and interest, but is in itself one of the fairest and most majestic sights that Earth can show. Source Edgewood David, (1908) *The Ascent of Mount Erebus*[402]

His descriptions of the landscape were strikingly different to the indirect digital experiences of the case study students. Tuan and others have suggested that an emotional connection either topophilic or topophobic is required if students are to develop a deep sense of place and for a place to be valued. [403] In the first research session few of the student extracts had displayed any personal values and attitudes towards the place of Antarctica. It was described as a place for adventure, *(Race to the South Pole* and *Twenty-Thousand Leagues Under the Sea*), 'many unclimbed peaks,' (*Trail Magazine*) 'a fun and exciting place to be'(personal experience of snow boarding), 'a natural, wild place, nothing manmade '(*Blue Peter*).

Kant (1790) argued that the sublime cannot be evoked through representations but only through an encounter with the real world.[404] It is possible that the repetition of 'sublime' images of polar regions brings a familiarity which reduces their impact and eventually they lose the power to create a sense of wonder. Technical limitations may prevent representations in other media formats from conveying the awesome landscape for example the colours of the ice.

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[402]accessed at http://acms.sl.nsw.gov.au/_transcript/2007/D00007/a031.html, 07/01/2016

[403] See section 2.43

[404] See the discussion of sublime perceptions in chapter 2, section 2.20

Sessions two and three demonstrated how critical reflection and exposure to representations containing striking images of landscape along with active people presenting positive attitudes towards the mountainous and icy terrain can successfully create perceptions of the landscapes of Antarctica as a sublime wilderness. The recorded thoughts by the students on their place matrix included ‘it is a pure untouched place,’ ‘amazing,’ ‘extreme awe,’ ‘awesome,’ ‘a fantastic place,’ and ‘an amazing romantic place.’

The effectiveness of the selected film clips to change student thinking was demonstrated by the many aesthetic descriptions of the landscape recorded on the place matrices and in the focus groups. These include ‘the landscapes are striking,’ ’undisturbed valleys,’‘beautiful landscapes in between the scenes,’ ‘ as the sun goes down at night it looks nice with the snow,’ ‘pristine’ and ‘there are astounding beautiful plateaus.’ Some students presented topophobic responses about the landscape reflecting the different emotional attitudes people can hold towards the same place. Examples of the responses are ‘there is a ‘cold harsh flat desolate area at the pole,’ ‘a very bleak and desolate landscape,’ ‘ a scary place to live,’ ‘a lonely place,’ ‘a tough and harsh environment,’ ‘a calm untarnished but dangerous place,’ ‘a cold unforgiving place’ and ‘the centre of Antarctic is desolate.’

6.16.The Missing Landscape

There were silences in the concept map data which revealed further deficits in the student understanding of the landscape. The unique features of the Antarctic

landscape of dry valleys, seracs/crevasses or sastrugi were not identified. [405] The research findings from the concept map about perceptions of the physical landscape revealed that for these students, as Muir noted the 'perceived landscape is a selective impression of what the real landscape is like. The impression might be very close to reality or it might contain misconceptions' (1999, p. 115). In addition, as the research demonstrates, perceptions of the landscape may be weak but through engagement and reflection on digital mages they can be changed.

These findings emphasise that all students should be provided with the opportunity to engage in curriculum activities that enhance their disciplinary knowledge and a sense of the landscape of Antarctica. Creating an emotional connection to the landscape would allow them to gain a better understanding of the impact of potential issues of conflict such as tourism, research activities and the impact of ice sheet change on global air circulation patterns, ocean circulation patterns and the climate of the Earth.

By 2014 NASA's Operation Ice Bridge had completed six sets of flights over Antarctica in NASA's DC-8 airborne laboratory to photograph and measure land and sea ice.[406] Their images, videos,and scientific research on glacial features have been made available to students and teachers and they could be used to create memorable student engagement with the physical and the glacial landscape of Antarctica.

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[405]Wind packed drift snow formed into small hard ridges

[406] Go to http://www.nasa.gov/mission_pages/icebridge/index.html and http://www.facebook.com/NasaOperationIcebridge accessed 02//01/2015

6.17.Natural Place:-Perceptions of Global Warming

All the year 12 students in the research project possessed understanding recorded on their concept maps that the Antarctic ice caps were melting or reducing in size possibly due to global warming and that this was linked to rising sea levels (42.5 extracts). The formal sources of their realistic perceptions were science lessons, geography lessons, newspapers, the internet and images and the informal sources of the animated film, Ice Age and movie films. Despite extensive political and cultural discussion about global warming just 6.4 extracts from year ten and one year seven student mentioned this issue in relation to the place of Antarctica. These simply stated that there was melting ice caused by global warming.

In sessions two and three, the research film clips referred only briefly through spoken narrative to global warming linked to penguin breeding habits and climate research. There were no memorable images of collapsing ice sheets. Therefore very few of the place matrix extracts referred to global warming. They included ‘the weather is changing due to the use of fossil fuels’ (year 7, cat 5), ‘we need to protect nature from global warming,’ and ‘ice bergs melt to the world oceans.’ The lack of student knowledge of this vital global issue especially in years seven and ten highlights the need for the holistic study of place. Powerful digital representations of ice shelf collapse and varied learning activities linking place and global warming with the natural place of Antarctica and the subsequent effects of this on distant places are required to achieve this.

6.18.Climate

The size of the continent at 14 million km² means the climate across the continent varies. To be able to accurately understand this, students would need access to formal knowledge.[407] The students' concept map responses about climate are shown on table 6.5.

Table 6.5:-The Students Perceptions of the Antarctic Climatic

	Year 7	Year 10	Year 12
Aurora Australis	0	0	5.31
blizzards	2	8.85	7.97
light	8	33.21	8
extreme climate	0	0	15.94
frost	2	0	0
rainfall (amount)	4	28.79	31.89
dry	2	17.7	23.91
snow	10	6.64	2.66
stars	0	0	2.66
storms	1	2.21	0
temperature	17	4.43	23.91
windy	10	4.43	2.66

6.18.1.The Aurora Australis

The Aurora Australis is a spectacular natural feature of the Antarctic continent with sublime responses in explorers accounts and present day scientists and narrators of documentaries. Despite this, the phenomenon was only recorded in 5.3 year 12 map extracts. These were students who were studying science A levels. Their knowledge

[407] It is classified into 3 climatic regions, the Antarctic Peninsula, the coast and the interior. The highest acknowledged recorded temperature was 17.1C (62.8F) on 24 April 1961 on the northern tip of the Antarctic Peninsula at Argentina's Esperanza Base. Strong gusting winds are found on the peninsula. The temperature around the continental coast can exceed +14°C in summer and fall to below −40°C in winter. In the high interior, temperatures rise to about −30°C in summer but fall below −80°C in winter. http://www.antarctica.gov.au/about-antarctica/environment/weather accessed27/12/2015The lowest official recorded temperature for Antarctica was on July 21, 1983 at −89.6°C at Vostok station, 1,300 km from the coast, at an elevation of 3,488m (Turner et al 2009)

had been gained from the formal sources of textbooks, documentaries, school lessons and the tv programme QI. Scrutiny by the researcher of the sources linked to all of the concept maps revealed there had gained experience of representations of the Aurora Australis. These did not explain the phenomena in detail and the media of books and animated films fail to effectively convey this event. The Aurora was shown in research session two in the clips taken from Frozen Planet and was enthused about in the commentary but these were not striking images. As a consequence only the year twelve students (62%) recorded the Aurora on the matrix. The focus groups revealed an absence of causal knowledge of the phenomena by all the students.

6.18.2.Temperature

On their concept maps all the year 12 students recognised the Antarctic continent experienced extreme cold temperatures with statements such as the ‘coldest place in the natural world.’ These accurate perceptions were attributed to the viewing of documentaries and secondary school teaching about global warming. Some of the year 10 students and 17% of extracts of the year seven students referred to the temperature of the continent as cold or freezing without any further detail demonstrating knowledge of cold places but a weak sense of the Antarctic climate.

The memorable film sequences selected for the research contained images of the Emperor penguins surviving or dying with images and narrative about the Antarctic winter. There were different positive accounts from research scientists and mountaineers discussing the effectiveness of protective layered and technological

insulated clothing as an effective protection against the extreme cold and clear factual accounts of the climate on all the film clips. Again the students became vicarious insiders. This powerful learning meant the majority of the younger students and all of the older students recorded accurate perceptions of the low temperatures in Antarctica on their place matrices. These included it is the 'coldest and windiest place on earth with temperatures below-75 degrees centigrade, with freezing blizzards.'

6.18.3.Precipitation

Precipitation over Antarctica varies from several metres of annual snow on the coastal margins to less than 50 mm in the continental interior.[408] It is classified as a desert.[409] The coded perceptions of the older students revealed basic but accurate knowledge about the lack of precipitation. The younger students extracts simply stated that it snowed in Antarctica. These perceptions of precipitation were obtained from a variety of formal and informal sources ranging from school, pictures, tv especially the Helen Skelton South Pole Challenge, Christmas movies and cards. The two further research sessions with film clips and discussion made little impact on student knowledge of precipitation. It was discussed by the narrators in the film clip but, unlike a hot desert, the variation in precipitation over an icy landscape cannot be conveyed by digital images. In fact the scenes with blizzards cause confused perceptions because these blizzards are mainly wind blown snow crystals not precipitation.

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[408] Turner et al 2009 &Turner & Marshall 2011

[409] 'This is due to the very cold temperatures in the interior and its isolation from warm moist air masses. Turner, J. Gareth, J. & Marshall, G. (2011) *Climate Change in the Polar Regions*

6.18.4.Wind

Just 17.1 student extracts (mainly year seven) noted there were strong winds on parts of the Antarctic continent. They had gained this knowledge from the memorable images they had viewed previously in the programme South Pole Challenge of Helen Skelton kiting on the continent. The film clips of sessions 2 and 3 effectively changed all the student perceptions of winds across the continent with detailed perceptions presented by the majority of the older students and 50% of the younger students.

6.18.5.Daylight

25% of the student sample commented on the amount of daylight in Antarctica in 49 concept map extracts. 11 extracts from year 10 and year 12 students contained references to 24 hours of daylight in summer and 24 hours of darkness in winter but this thinking was applied to the whole continent. The sources of their perceptions in rank order were *Planet Earth,* school, *National Geographic,* news, photographs and parents. 7 student map extracts showed confused perceptions about the length of daylight in Antarctica. For example it 'never goes dark the sun is always visible' (year 12 male).

2 extracts referred to sunny days.The cited sources for these perceptions were Helen Skelton's *South Polar Challenge* and *Happy Feet*. The film First Ascent showed people skiing and climbing on sun drenched mountains therefore the students commented on the place matrix on the sunshine but apart from this there were few references to daylight. The winter darkness was briefly described but it was just a

back drop in Frozen Planet to the narrative on wildlife and scientists.

Locational and scientific disciplinary knowledge is necessary for students to understand the visual and narrative 'texts' linked to daylight hours below the Antarctic Circle. Powerpoint slides are available on subject and exam web sites but for this factual knowledge to be memorable it needs to be linked to place. Paula and Tony Richardson (2012) in *Living in the Freezer* present a diagram to show the movement of the earth and the tilt of its axis to explain the causal factors behind the amount of daylight at the poles. This accurately states the *'S*outh Pole;-summer all day sun,' and 'South Pole;-winter all day night.' However, this does not apply to the whole of the continent and this is not clarified. The lack of accurate understanding of this issue by the students in the research sample and their failure to connect this to the difficulties this creates for residence and socio-economic activities emphasises the need for a different pedagogical approach. To be effective, teaching about daylight in Antarctica should be linked to the student's own experience of changing daylight, the actual causal factors and images and the narratives of daylight and darkness in different places across Antarctica and locational knowledge. The Australian government web site uses graphs of daylight at it stations to emphasise the variability of summer and winter sunlight across the continent which could be used to create a learning activity for students.

6.18.6.The Ozone Layer

Only one concept map concept (year 10) referred to 'ultra violet rays with harmful

radiation.' The student had learnt about this from school science lessons and knew this was linked to the hole in the ozone layer. The absence of perceptions of this global environmental issue by all of the other case study students issues is a significant finding. Websites and film clips tend to discuss Antarctic research from their own nationalistic perspectives. The effects of CFC gases on the ozone layer were discovered through cooperative research work in Antarctica. The subsequent international ban on CFC gases could be used to show how global cooperation over an environmental issue can be effective.

This is only a sample of students but the coded concept map data for their perceptions of the Antarctic climate highlights how formal sources and teaching had created accurate perceptions of the Antarctic climate for some students and confused perceptions for others. Digital representations were successful in effectively changing these students perceptions of some but not all aspects of the Antarctic climate. The findings, highlight the need for the English secondary school curriculum to provide all students with holistic opportunities to study the causal and concrete aspects of the climate of Antarctica. This understanding is vital if students are to critically reflect and debate the questions of human residence in Antarctica, the effects of the hole in the ozone layer and the impact and evidence of climate change.

6.19.Natural Place:-Perceptions of Antarctic Vegetation

Vegetation was absent from most concept maps. This was an expected result as only two flowering plants are found on the Antarctic Peninsula and islands. In this

location and other ice free areas of the continent, fungi mosses, liverworts, lichens grow that are adapted to the low temperatures and lack of precipitation. These would not be apparent in the representations that most of the students had encountered. Two year 12 students studying biology described this sparse vegetation and how this vegetation was easily damaged on their concept map extracts. One year ten student thought Antarctica was forested indicating place conflation with the Arctic. There was no change to the student perceptions on vegetation following the film clip screening and discussions because as one seven student commented 'we didn't see any plants.' This demonstrates the need for additional learning activities to introduce disciplinary knowledge about habitats alongside critical reflection on digital films and the use of a place matrix.

6.20.Perceiving the Sounds of Antarctica

Antarctica was perceived on the student concept maps as a silent place apart from the two students who noted there were squawking penguins and another incorrectly roaring walruses. In this vast wilderness area some human noise of people and their modes of transport intrudes but for most of the continent the lack of people means 'you can actually hear Geology happening'[410] as the rocks and glaciers move, ice forms, cracks and melts. There are whistling and gusting winds and around the coast in the summer months the sounds of wildlife. The use of music and voice overs throughout animated films, cartoons and documentaries hides these natural sounds of

[410] The words of Jeff Wilson, a Director on the BBC series Frozen Planet interviewed for the BBC Radio Programme see http://www.bbc.co.uk/programmes/b0194n4p accessed 02/01/2016

Antarctica.

The Frozen Planet clips used in research sessions two brought to many of the year seven students the loud and noisy squawking of penguins and 'the weird sounds of the elephant seals' and 'the weird sounds of the whales.' The older students familiarity with these wildlife sounds through documentaries meant the animal sounds were not mentioned on their place matrices. One possible way to introduce the many sounds of Antarctica to the students would be to use sections from the 2012 BBC radio programme, *Soundings from Antarctica*[411] or the separate sound recordings listed on the Australian government website.[412]

6.21.Nature as Commodity

The voyages of discovery and exploration surveys of Antarctic discussed in chapters 1 and 2 were linked to the search for commodities and today scientific research continues to reveal the natural Antarctic resources of value to humans. However these were absent from the year seven maps. The year ten and twelve students recorded the commodities of precious crystals, oil reserves, natural gas and coal and water on their concepts maps. The students knew about these resources through news reports, newspapers and documentaries. However, some confused perceptions were presented by some of the male year ten student about an Antarctic cave. This was perceived to be full of brilliant diamonds but in fact was a cave of ice

[411] ibid

[412] http://www.antarctica.gov.au/about-antarctica/sounds accessed 06/02/2016

crystals. These perceptions had been gained from a BBC documentary clip used in a school lesson. Discussion in the focus group with peers and the researcher changed these confused perceptions. Again this emphasises how students need to be given opportunities to make conscious their perceptions after viewing digital images.

Only one year10 student knew there was a resource conflict over the impact of over fishing on sea species from the digital film Happy Feet. One student (year 12) recognised that the resources of Antarctica are protected. He had gained his sound perceptions and knowledge from the BBC and newspapers. He discussed in the focus group 'the political debates and tensions over potential oil reserves' and 'how oil exploitation might destroy the landscape.' None of the students were aware of the krill harvesting industry and the impact of this on fragile Antarctic food chain. The research film clips did not cover these important issues of commodity conflict. The year ten students were intrigued when the issues over Antarctic resources were raised in the focus group discussion. Their keenness to know more highlighted how precise and detailed knowledge about places is important to students.

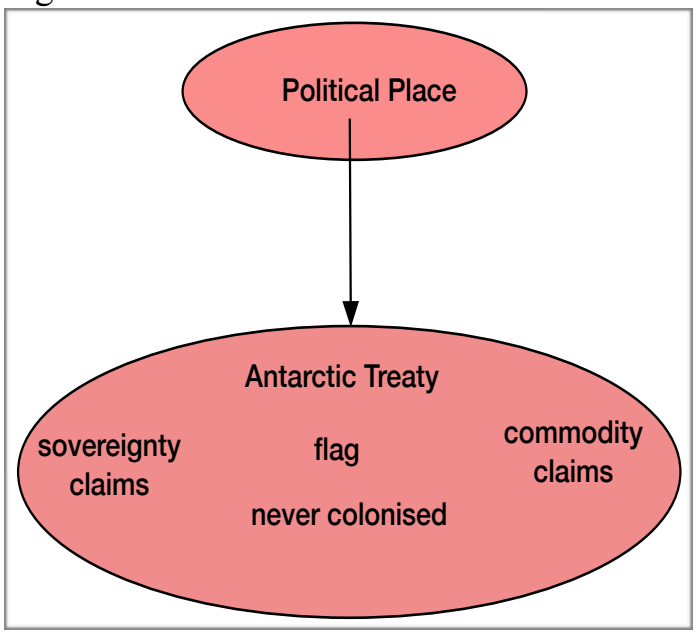
6.22.Political Place

The protection of the resources of Antarctica forms part of the Antarctic Treaty.[413] The student perceptions about the treaty were classified under the apriori code of political place. The derived axial codes are shown in figure 6.10. Unexpectedly none of the year seven students possessed any perceptions about the political status of Antarctica.

[413] See chapter 2 section

Only 20% of the year 10 and 12 extracts of varied depth of understanding were linked to the unique political situation of Antarctica. These older students realised 'Antarctica 'was never colonised,' 'it is not a sovereign state,' it is 'shared land with conflicting claims over ownership including the Southern Pole of inaccessibility and resources and it has its own flag.' The sources for these responses were TV news and documentaries, personal research and school lessons.

Figure 6.10:-Political Axial Place Codes



Another notable finding was that only two students discussed the Antarctic Treaty. A year ten female had gained her perceptions in geography lessons and the news.[414] A year seven student also knew that the penguins were protected by the Treaty. Film clips can only visually convey the flags at the South Pole and the flags at individual national bases. This lack of student perceptions again highlights the need for all English students to have access to learning activities that combine factual knowledge

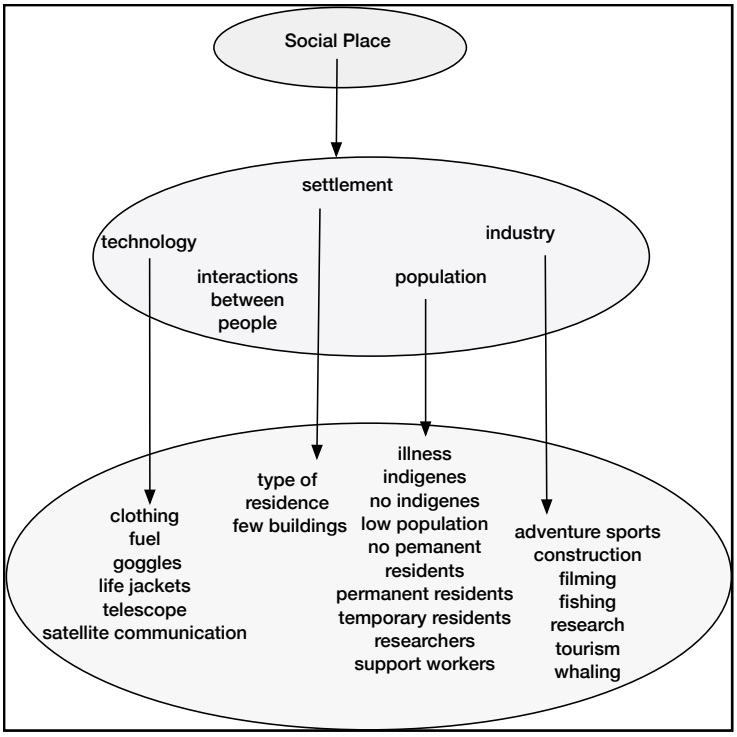
[414] This student had attended different geography lessons to the other year ten students. Emphasising the role experts play in learning.

with critical reflection about this unique example of international agreement and the role it plays in protecting the Antarctic environment.

6.23.Social Place

Chapter two section 2.13 examined how the social place of Antarctica had become ‘a lived space, a space of difference that incorporates varied social actions and behaviours.’ (Lefebvre, 1991, p.33) which vary from the time of discovery and space and with the flow of social constellations within and over place. (Massey 1994, p.154) The social themes from the mind maps were identified with the axial codes seen in the diagram in figure 6.11 to establish what perceptions of lived space were held by the students.

Figure 6.11:-The Axial Codes for Social Place



6.24.Population

The students' recorded limited but varied perceptions on their concept maps about the people who created the lived spaces of Antarctica. These are shown on table 6.6.

Table 6.6 Student Perceptions of the Antarctic Population

researchers	0	0	0
support workers	0	0	0
temporary residents	2.21	2.66	0
illness	0	0	8
low population	4.43	7.97	1
no indigenes	2.21	2.66	0
no permanent residents	0	0	2
no inhabitants	0	2.66	1

Antarctica is a unique place because it has no indigenous or native population but this was recognised on only 4.9% of the concept map extracts. 3.66% of the sample thought nobody lived there and 13.4% that only a few people live there. None of the students realised that there are in fact a small number of permanent settlers including school children at the Argentinian research base of Esperanza on the Antarctic peninsula. Enabling students to explore how and why this settlement was created by the global, political and social flows over time that have influenced the place of Antarctica identified in chapters one and two of the thesis would be an effective strategy for learning about Antarctic settlement.

Conflation occurred in 16.0% of the extracts linked to the student perceptions of human residents of Antarctica across the age and ability range. Helen a high ability year 12 student studying Geography A level, believed there were 'nomadic tribes who live off the land and in harmony with it.' She stated she had gained this knowledge

from school lessons, documentaries, scientists and a visit to the National Museum of Scotland. Her concept map included perceptions of Scott's expedition and it displayed 'objective knowledge' not 'empathetic knowledge'[415] of the place of Antarctica and a failure to separately distinguish the two polar places. Joan perceived Antarctica 'to have small populations of tribal natives,' 'who were protective of their place.' She believed she had gained these perceptions from school lessons and music sourced from Antarctica. One year ten female student's map simply recorded eskimos (sic) with no further elaboration of source.

The year seven students who perceived there were native people residing in Antarctica were the higher ability students with CAT scores ranging from 5 to 6. Their perceptions of resident Eskimos[416] were gained from an eclectic mix of informal sources including Ice Age, Ben Jones:-the American comedian/film director and parent. Another student described these native people as 'Inuits' who have to keep warm. 'She claimed she had obtained her information from the more formal sources of primary school, films, News Round, internet and pictures.'

These conflated perceptions of the population of the two polar areas highlight how learning about Antarctica needs to start from individual perceptions. The provision for critical engagement with her peers[417] in the focus group discussion and the film clips in research session two led Helen to quietly tell the researcher her 'thinking had changed,' 'I had muddled the two places up, there are no natives in Antarctica.'

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[415]Rawling, 1991

[416] Eskimo is considered by many to be a derogatory term for reference to indigenous people in the Arctic regions. Inuit should be used to refer to indigenous people in Greenland, Canada and Alaska. The term Inuit should not be applied to the residents of south west Alaska and Siberia.

[417] Freire 1972

6.25.Settlement

None of the year seven students and only 10% of the older students possessed any perceptions about Antarctic settlement. These varied from realising it was ‘possible to build permanent structures,’ to knowing there was ‘an American research base’ and believing there were ‘outpost research bases’. These accurate, objective perceptions had been obtained from non-fiction books, documentaries and the TV programme QI. A year ten student described the difficult living conditions at the bases. Perception he had gained from geography lessons and text books.

In sessions two and three, the students were asked to consider the interactions taking place between people in the film clips not details of the population of Antarctica. The representations showed residents of the research stations at work and play. These changed the understanding of the students about the residents of Antarctica. A high ability year ten student noted on his concept map and commented ‘I didn’t realise that all those people were involved in Antarctica.’ In the focus groups all the students discussed the number of support workers and their activities as well as the work of the scientists. The positive attitudes of everyone in the films towards the place of Antarctica captured the student imaginations. Across the age and ability range, students expressed an interest in working in Antarctica when they were older especially as chefs, builders, scientists or transport workers.

Through the media representations the students gained an understanding ’that organisations and countries from all over the world, work together in Antarctica’ and ‘researchers from other countries work together on science projects and at bases.’ The students noted the emphasis on ‘teamwork’ and ‘how the people look out for each

other all the time,' and are 'like a family:-a close knit community.' Once again the power of selected digital representations to demonstrate different aspects of the discourse of place and to change perceptions was demonstrated. The researcher selected a film with a female leader to talk about life and work at the stations. The students were unaware of the historic exclusion of women from the Antarctic bases discussed in chapter 2. Therefore, when questioned by the researcher, they did not see this as unusual. Critical evaluation of the obtaining of equality for women in Antarctica and how this was achieved could be used in teaching feminist issues as well as Antarctica as place.

The clips of the Australian Mawson and Davis stations and the building of the Halley station and the Amundsen Scott South Pole Station brought many new perceptions on Antarctic settlement to all the students across the age and ability range. The most simplistic description was given by a male student in year seven with a CAT score of 4, 'the research bases are very white and snowy.' Blogs and school text books emphasise the difficulties and dangers of researching in Antarctica. These film clips presented secure and comfortable bases and changed their perceptions of residence in Antarctica. Many of the students were surprised at the size, extent, facilities and futuristic design of the stations. Student comments across the age range included:-

- 'I didn't know about the bases and super stations.'
- 'the settlements are very different to what I expected.'
- 'lots of big new buildings'
- 'self sufficient research camps,'
- 'there are lots of people at the bases'
- 'scientists live on the research ships'

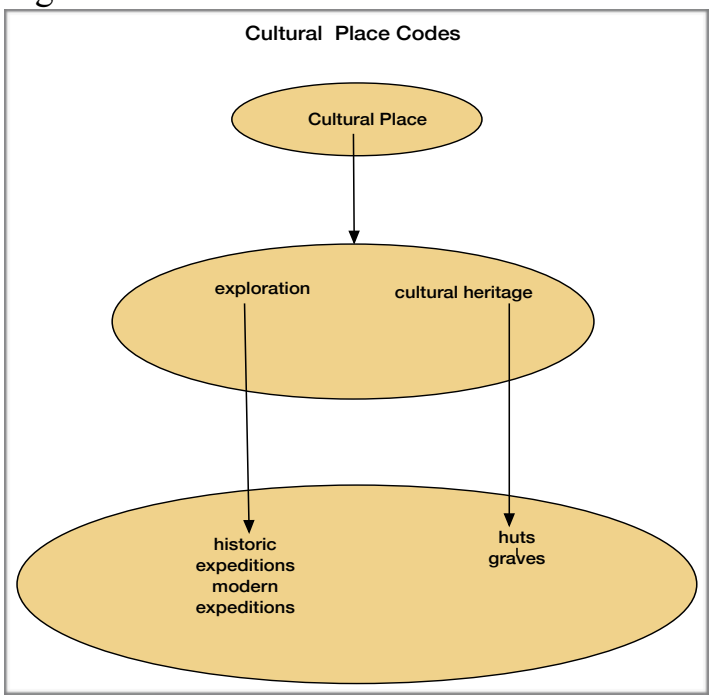
- I now think life in Antarctica is easier than I thought

The students' place matrices revealed that they had gained new insights into the reasons for the design features of the new research bases and the role of support workers in building and maintaining them. The striking images created critical student reflection on these powerful film clips representations. This led to questions about the ethics and reasons for locating these facilities in Antarctica including:-'I am very shocked, the settlements don't fit in with the natural habitat,' 'are the state of the art facilities needed,' 'is the research worth while?' and 'the research is destructive.'

6.26.Cultural Place

Chapter two discussed at length the cultural influences of representations from historic expeditions. The research coding is provided in table 6.12 below.

Figure:-6.12:-Cultural Place Codes



The case study research was undertaken mid year in 2012, the centenary of the death of Captain Scott and his four companions in Antarctica. There had already been extensive coverage of this British Antarctic expedition and displays of the images of Herbert Ponting in exhibitions, on television programmes, newspapers and the release of new academic and popular texts and web-site materials. These have introduced time and space compression (Harvey 1990, Giddens 1990 and Dicken 1988/2010)[418] between the cultural representations of Edwardian Antarctica and today.

The case study findings contrasted with these cultural heritage discourses of early Antarctic exploration. Table 6.57highlights how, for many of these students, their perceptions had not been enveloped in the socio-cultural myths of the 'heroic' early explorers. There was only one partially accurate reference to historic exploration by the year seven students. This was provided by a high ability student, 'the first man to reach Antarctica was a Norwegian and the English and the Norwegians had a fight to race to the South Pole.' Her perceptions had been gained from You Tube and the internet.

Table 6.7 The Students' Cultural Perceptions of Antarctica

	Year 7	Year 10	Year 12
Cultural Place	11	19.93	98.31
Historic expeditions	4	2.21	23.91
Cultural Heritage (Huts, Graves)	0	8.86	10.63

The remaining year seven extracts linked to the historic exploration of Antarctica were sparse, inaccurate and vague. They included:'this guy and his crew went out

418 See section 2.23

there but found out it had all been owned by Sweden. He tried to come back, but died trying' (no source given). The year seven students' fragmentary perceptions of the early exploration of Antarctica were again exposed in the focus group discussion. They showed confusion about the first two polar expeditions to reach the pole. A female year seven student began the conversation with her perceptions gained from a primary school book. 'Was there a story about a man who wanted to gain the North Pole, with a team but found he was already beaten, then he went south, turned round, crashed and died'. The researcher corrected these inaccurate perceptions. Other responses included 'Was he called Robert something?' 'I have heard of him but I don't know who he was.' 'Was he a Norwegian ?' As the discussion continued they shared other vague perceptions: 'I know there was a competition,' 'somebody said he wasn't well equipped and he used wolves for transport.' (The latter perception was corrected by another student.)

A minority of year ten and twelve students possessed accurate but scattered perceptions of the 'heroic' explorers. A male year twelve student listed the following brief perceptions:-Captain Scott, Captain Cook, newly discovered, still unknown territory, exploration was dangerous, dead in competition and Shackleton, (source:-a BBC documentary). In the focus group, he shared a detailed sound understanding of the early exploration of Antarctica with his peers. Another student named the explorers, Scott, Amundsen and Shackleton, and noted 'Scott travelled across wide plains of ice' with no elaboration on his method of transport. A third had learnt about Captain Scott from information in an AQA, GCSE geography revision guide!

Discussion in the year ten focus group raised the fact that Ernest Shackleton's epic

explorations were frequently cited as an example of good leadership by one of the teachers in this school. However use of Shackleton's heroic exploits without any association with representations of natural, social and cultural Antarctica meant these students had failed to connect these ideas to the place of Antarctica.

Only one of the students displayed knowledge of the early huts built in Antarctica, despite the cultural significance of these buildings in the English National story, as evidenced in the restoration of the huts and the popularity of exhibitions with artefacts from the huts discussed in section 2.43. The students viewed a film clip showing David Attenborough in the Terra Nova hut lyrically talking of the 'heroic' explorers.[419] However few students recorded details of this on their place matrices apart from huts or very big huts. The comment it 'shows an old hut that has the stuff from the first explorers,' and the discussion in the focus group illuminated that these highly valued English cultural artefacts held no relevance for these students, probably because they lacked knowledge of the early exploration of the continent. This lack of cultural capital will reduce their understanding of popular news items about the early exploration of Antarctica. More significantly, it will diminish the ability of the students to understand current issues about the sovereignty of Antarctica.

Questioning in the focus group revealed hat these students had not encountered the iconic black and white Antarctic images of Herbert Ponting and Frank Hurley. Learning activities connected to the values and attitudes surrounding the issues of the preservation of the huts could perhaps enable students to gain an understanding of Antarctica's history.

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419 see section 5.15 for further details

There was a complete absence of any perceptions of the more modern scientific expeditions led by polar explorers such as Robert Swan and Ranulph Fiennes. However, the students were familiar with modern day adventure expeditions such as those of Ben Fogle and in particular the year seven students had gained perceptions of the strength of the wind and mountainous terrain from representations of the broadcaster Helen Skelton's journey to the South Pole. In research session two they became fully engaged with the mountain trekking and skiing adventures of the First Ascent team.

In research session one the students revealed naive perceptions about transport in Antarctica. Research sessions two and three transformed their perceptions of travel in Antarctica as a place where people man-haul or use dog sledges to a place where travel was by varied and sophisticated transport including helicopters and skidoos. The necessity for this transport also changed their perceptions of the size of the continent and of the ability to travel across the continent to conduct research.

The concept mapping activities drew out that only a minority of the students knew about research in Antarctica. The digital film representations enhanced their understanding of the type of research conducted on the continent. They became aware of the sophisticated science being conducted on the continent, the state of the art laboratories for marine science, astro physics and the natural environment. They recognised that the scientists are enthusiastic and committed to their challenging work, 'the scientists are excited I cant explain it in words,' and 'they enjoy discovering new things about the environment.' This led to several students expressing interest in becoming involved in Antarctic research work either as

scientists or support workers.

Critical engagement with these representations led the older students to question the nature and the value of this scientific research. Their comments include ‘the research is all very destructive’, ‘there is exploitation of the ice for human needs’ and ‘the ice breaker ships and research are damaging sea life.’ It would have been beneficial to have undertaken other learning activities with these students to examine the different attitudes adopted towards wilderness and nature discussed in chapter 2

The research had led to the encoding of many new student perceptions about the Antarctic wilderness and the majority of the students had developed concerns that the ice should be protected.

6.27.Conclusion

This thesis began with a detailed evaluation of the historical changing perceptions of the place of Antarctica. The initial findings of the case study contrasted with this cultural and academic discourse about this globally significant place. Through the process of the case study research, the questions listed in section 4.4 were successfully answered and all of the students gained ability in understanding what constitutes place, an essential skill for all global citizens.

The concept mapping activities, as discussed throughout this chapter, disclosed that many of the students initially held fragmented and at times confused perceptions of the place of Antarctica. Many of these perceptions had been gained through their personal engagement with representations outside the school curriculum. This had

created individual ethno-geographies (Catling and Martin, 2011). The activities for making these conscious and exposing them to expert and peer scrutiny were shown to be effective in creating cognitive dissonance especially for species conflation. This process provided the opportunity for targeted digital materials representations in the following research sessions.

The strategy of open coding of the student data successfully created themes in the student data linked to the discourse of place and identified deficits in disciplinary knowledge and student understanding of the place of Antarctica.

The most significant finding was the lack of understanding of the global political situation relating to Antarctica and the Antarctic Treaty. This would reduce student ability and the future adult to critically evaluate the territorial and commodity issues impacting upon this continent. The research activities revealed that digital representations, as shown by the marginal change in student perceptions, cannot convey this. This emphasises the need for engagement with disciplinary knowledge (Young 2009), other learning activities alongside film and critical discussion of representation production.

The deficits in the student perceptions of natural place were identified, challenged and as discussed in the research, some were successfully changed through the research activities. A significant outcome of the research was the successful creation of new and evaluative, aesthetic and affective perceptions through experience of selective, memorable, holistic digital representations of place.

The research revealed that perceptions of the environment can be gained from

films. These research findings highlight that opportunities for affective learning (Catling 2005) can be very effective in assisting students to gain a deeper and critical sense of place and the ability of varied stimuli to change perceptions as Frith (2007) Kosslyn (1980) and Style (2005) is correct.

An original framework for identifying existing student perceptions of place and assessing the impact of digital films has been devised and new techniques for collating and analysing student perception of place have been created that can be shared with others to improve the teaching of place.

Several strategies for using digital technology were explored in chapters 1.2 and 3. It was not possible to explore the impact of these in this case study due to problems with access to technology within the school session.

Pedagogical codes were applied to all the data. The results for the concept mapping activity revealed a lack of locational knowledge, many perceptions linked to locale and some showing a deeper sense of place. The work with the representations and the place matrix created a deeper sense of place students. Specific, integrated locational activities evaluated in chapter three need to be part of all learning about place.

The case study techniques provided students with an awareness of the need for critical engagement with representations of place in order to gain an understanding of the different values and attitudes that the producers of representations possess.

Chapter 7:-Conclusion

To be human is to live in a world that is filled with significant places

Source Relph (1976 p.i)

7.Place Discourse and Representations

This thesis through a critical cross disciplinary approach explores the philosophical and psychological contexts from which we gain understanding of the constituents of place. It examines the value judgments which influence our perceptions of place. These include the culture/nature dichotomy (Ingold, Wylie, Muir, R. and Bunce), the cultural representation of place (Gregory, Relph, Tuan and Bourdieu), imperialist ideologies (Plozajska, 1999), the feminist or masculine perspectives of place (Rose and Yusoff) and the current social realist ideas on place which examine 'the interfusion of the natural and the cultural in place region and territory' (Casey, 2009 pp. xxxii-xxxiii). The author's conclusion is that place should be seen as a continuum of interwoven social, cultural, aesthetic and natural place.

These place discourses are situated through the extensive research of primary and secondary resources within the continent of Antarctica. These discourses bring an original perspective to the increasing number of narratives about representations and the continent of Antarctica. They examine how we know what a place is like through discussion of the different perceptions of Antarctica over time. They investigate the changing western values attached to this distant place in relation to societal, cultural and scientific changes and the cartographic, visual and written representations produced over time outlined throughout chapters one and two. This research could act

as a foundation to enable other researchers or even students to create similar place discourses for other geographical areas.

The research makes this place narrative of the continent of Antarctica interwoven with the place of Antarctica accessible for students, teachers and others. It provides a place discourse framework to examine and analyse student's perceptions of Antarctica and other places. The place code hierarchy and / or the research techniques could be used by other researchers to question students' place perceptions, other representations of places and to compare and contrast the values and attitudes of people of different cultures to places.

7.1. The Curriculum and Place

Chapter three discussed how the English school curriculum has been through a time of change, with a move towards subject integration and creativity followed by a return to a knowledge based curriculum (Morgan, and Lambert 2011). Aspects of place such as sustainability, citizenship and climate change have remained high on the curriculum agenda (Standish, 2003 & 2009, Lambert, 2011 & 2004 and Hicks, 2014 & 2008). The Ofsted reports on geography noted 'across the whole curriculum these issues need to be set in the context of real and recognisable places to ensure student understanding develops beyond an awareness that such issues exist' (2011, section 10).

Place is a central and enduring concept within the discipline of geography. The pedagogical approach to the teaching of place, as chapter three critically traces has

varied but it has left a legacy on the present day curriculum. At the beginning of the twenty-first century there was a reduction in the numbers of students studying geography beyond the age of fourteen (JCQ, 2015, Hart, 2015), Ofsted criticism of the quality of the geography taught in some schools (Ofsted 2005 & 2011) and debates about what school geography should be (Butt et al. 2011). Initiatives successfully overcame these issues, increasing the uptake of geography at higher examination level. Chapter three examined how these innovations led to the dominance of a pedagogy linked to the belief in the socio-cultural construction of the objective knowledge of place (Massey, Rawlings, Taylor) and the concept based Geography National Curriculum of 2008. Recent changes to the subject at the national level have led to greater emphasis on individual places, physical geography and marketing of places.[420]

7.2. Improving the Teaching of Place

The research suggests aspects of the teaching of place which need to be addressed. The classroom research findings from session one presented in chapter six of this thesis draw attention to the fragmented constructions of the place of Antarctica held by individual students, the persistence of naive perceptions despite experience of formal representations and the 'weak objective outsider'[421] perceptions of place held by students across the age range about the Antarctic landscape and climate. The research activities demonstrate how concept mapping and discussion or other open

420 In the case study school Geography taught by a team of well qualified staff had remained a strong subject.

421 Relph (1976)

ended techniques, such as those used in philosophy for children, can be employed in teaching about places. These would enable individual students to identify their own ethno-geographies (Martin and Catling 2011) and therefore create the potential for cognitive dissonance. The findings highlight how the place representations selected for teaching and learning activities need to convey different points of view and conflicts . This would enable student questioning, analysis and reflection of the different place narratives to enhance their sense of place (Relph, 1976) and develop transferable critical thinking skills.

Through the analysis and discussion of the representations of Antarctica experienced by students, the thesis reveals the different cultural perspectives and the lack of integration of the social, cultural and natural aspects of place in representations. It indicates that a critical social realist approach to the study of place is required (Demeritt, 2002, Firth, 2007 and Searle, 1995). The selection of holistic representations should, as the case study demonstrates, enable students to move beyond naive realistic perceptions of place and to begin to perceive 'place as a fusion of the natural, social and the cultural in place, region and territory within space' (Casey, 2009, pp.xxxii-xxxiii).

The research demonstrates how a consideration of the socio-constructions of any place could significantly alter the teaching and learning of place in English schools. Deciding on the techniques to achieve this, as in the pilot study, could be a collaboration between students and teachers. This would assist students to develop a deeper sense of place and enable them to see place from the perspective of a 'vicarious insideness' (Relph,1976).

Sections 1.10, 2.43 and 3.30 of this research examined the increasing opportunities to bring and critically evaluate holistic digital place representations into classrooms, linking places across time and space to natural environments and social interactions in distant lands. This changing technology provides access to digital maps, images and data of distant places which, as chapter one illustrates, can create changing perceptions of places and opportunities for data analysis.

7.3. The Wider Context

This thesis addresses more fundamental intellectual contexts in relation to the value judgments that influence our perceptions of place. It questions how we can determine the validity of sources, gain an awareness of contrasting representations and consider how these may have been influenced by the values and attitudes of the producers of the representations.

Through the place of Antarctica, the different ways in which individual people perceive natural place are examined. The culture / nature dichotomy or the Cartesian debate and the hermeneutic phenomenological approach (human being as within not apart from the environment) are rarely discussed outside the academic world but they influence all representations and the different cultural discourses on natural place.

The thesis considers the effect of the different cultural attitudes adopted towards nature. Nature is no longer seen as fixed. It is understood that it changes over seconds, months and millennia and it can be transformed by human impact. The teaching of place needs to convey this.

Other philosophical debates about natural place are reviewed and evaluated. These include the different perspectives held towards landscape and wilderness, the commodification of nature and the different attitudes to the conservation, protection or domination of natural place. The research demonstrates how debates on natural place can be encountered by students through a consideration of conflict issues in Antarctica, for example the building of research stations.

The research explores the scientific perspectives held about place in relation to Antarctica. It highlights how scientific knowledge is constantly changing due to developments in technologies, changing attitudes to science and the social construction of scientific labels which means they are not static. The different scientific perspectives on climate change demonstrate to students that empirical scientific answers can be questioned. Students may encounter these ideas in school science lessons but grounding them within the context of a place could deepen understanding.

The dialogue surrounding the aesthetic attributes of place within the context of different times and cultures is discussed in the thesis. The research demonstrates how an aesthetic consideration of place can be successfully brought into the classroom.

The effects of gender and culture on the representations of Antarctica are investigated, in particular how male explorers often feminise the landscape. Chapter two portrayed how women have recently brought a different perspective to the natural representations of Antarctica.

Introducing students to these philosophical debates is crucial for these future

citizens to gain understanding of the various stances surrounding global and local issues of environmental protection and historical conservation.

Placing this extensive academic discussion into the context of representations of the Antarctic environment makes discourse accessible to others. Modification to this review could create an exemplar for teachers and students to consider how abstract concepts of place become part of their conceptual maps of places. For example, how observing sublime landscape images from a secure place could enhance sublime attitudes towards place (see section 2.42) or reduce their impact through familiarity.

The thesis explores through the writings of Tuan and others how affective responses may be conveyed in representations. It employs learning activities which create emotional responses in students and deepens their sense of the place of Antarctica. It highlights how the study of place in school needs to go beyond the factual understanding of place.

7.4. Beyond the School Curriculum

The thesis lies at the heart of debates about place learning theory and the efficacy of constructivist approaches to teaching and the socio-constructivist belief that place is perceived through the senses but constructed by the mind (Tuan, 1977 pp.200-201, & Ingold). The case study demonstrates how the individual construction of knowledge means that the perception of place varies between individuals and different cultural groups (Tuan, Cobb, Relph and Ingold).

The review of philosophical ideas of Bourdieu on cultural capital discussed in

section 2.18 indicates how maps, images and writings reflect the place perceptions of the producer and the cultural capital of society at the time of production. The analysis of the representations of the place of Antarctica throughout chapters one and two clearly demonstrate the dynamic nature and different interpretations of place. This raises questions about what constitutes disciplinary knowledge and whose powerful disciplinary knowledge is being imposed on the curriculum (Young 1971 & 2009 and Lambert 2004 & 2011). The participatory input of the students working with the researcher in the pilot school exemplified how co-collaboration of students and teachers can lead to critical thinking about their own perceptions of place.

A central tenet of the thesis is that all images and writings about places now and in the past reflect the symbolic capital, social and cultural values of the producer of the representations of place (Bourdieu, 1993). The researcher has applied these to Antarctic representations. The research project showed how critical thinking about the values and attitudes of the creator of representations can be used in the classroom. It highlights the need for students to gain media literacy (Buckingham 2003) and visual literacy (Rose 1996), to enable them to realise that representations are not objective, neutral viewpoints of place. This would allow them to question and reflect upon the ideas presented about place in school and in the future. It is only possible for students to decode cultural representations of place if they have mastered the cultural code of the society at the time of their production.

Students need to reflect on their own social capital and the influence of this on how they perceive representations. The year seven students in the pilot and case study enjoyed identifying the sources of their own perceptions and discussion of the

perceptions they had obtained from this through critical engagement[422] with their peers and the researcher. The research demonstrated how this can create cognitive dissonance, for example the conflated perceptions of polar bears and people possessed by year 12 Helen discussed in section 6.25. This illustrates how social constructivist pedagogy can be employed in assisting students to understand the influence of their own social capital on their place perceptions and that learning is personal and builds upon their own previous experiences.

The research findings could have wider implications and the research methodology could be employed beyond schools. The thesis investigates how reaction to place is not a universal experience due to personal experience, gender, culture, ways of movement through a place and the length of time resident in a place. As a consequence, as Relph observed forty years ago, internal and external observers of place hold different perceptions of place (1976, p.62).

The thesis in section 2.43 investigates through the place of Antarctica how living somewhere, the length of residence in a place and ownership of the dwelling may create a deeper sense of place. It considers why we develop topophilic perceptions of some places and topophobic perceptions of others. It explores how this 'dwelling in place is as much imaginative and conceptual as it is visceral and sensual,' (Cosgrove, 2010, p.47) leading to different individual and cultural perceptions of place.

Understanding why we develop these different perceptions through residence in place has been explored in many urban design studies. However, it could have many topical implications for work with students. A recently arrived migrant's perception of

422 Freire,1996

a place will be very different from that of a long term inhabitant and the migrants perceptions of their home place and temporary place of residence will vary from residents in the host country. The sense of place of a homeless person will contrast with those who view place from a secure environment. Using the research techniques outlined here could enable individual student inhabitants of place to make conscious their place perceptions. Reflecting upon these perceptions could lead to greater understanding of the cultural values and attitudes held by others towards particular places in the UK, Europe or globally.

The discourse of place needs to move out of academia and into schools. The finding of the case study could be used to reopen the debate on the pedagogy of place. Teachers, trainee teachers, curriculum designers and producers of representations may never have been asked to question their own ways of 'seeing the world.' They need to consider the influence of this prism on the representations they select for use in the classroom and on the curriculum or learning activities they construct.

The examination of the concept of the place of Antarctica traced in this thesis and how and why it is important to develop this in students could be applied by other researchers to other geographical areas and in primary schools. The research methodology could be employed to consider other concepts across the school curriculum. The Antarctic narrative could stand alone as a text of interest to the many people currently interested in polar exploration.

The pedagogy of place in the twenty-first century, with increasing access to digital materials to distant places and in a world of time space compression, needs to provide students with the ability to critically reflect on the discourse of place in all curriculum

subjects. It should develop in students a questioning approach to place representations and introduce them to disciplinary knowledge and an understanding of the dynamic nature of place. This should begin in schools at a young age. The researcher believes this could impact upon the teaching and learning of place.

The final words should rest with the voice of the students who gained new perspectives as a result of the research study on the place of Antarctica. ‘Antarctica is cool,’ ‘it is a magical, astounding beautiful place’ and ‘it is a fun and exciting place to be,’ More significantly many of them began to question the effect of humans on this place. ’There is much more human impact on the environment than I realised’ and ’there should be more protection of this environment.’

Abbreviations

BTEC Business and Technician Education Council

CAT Cognitive Attainment Test

GA Geographical Association

GCE General Certificate of Education

GCSE General Certificate of Secondary Education

GNC Geography National Curriculum

GNVQ General National Vocational Qualifications

OECD Organisation for Economic Cooperation and Development

RCA Royal College of Arts

TVE1 The Technical and Vocational Initiative

YPG Young Peoples' Geography Project

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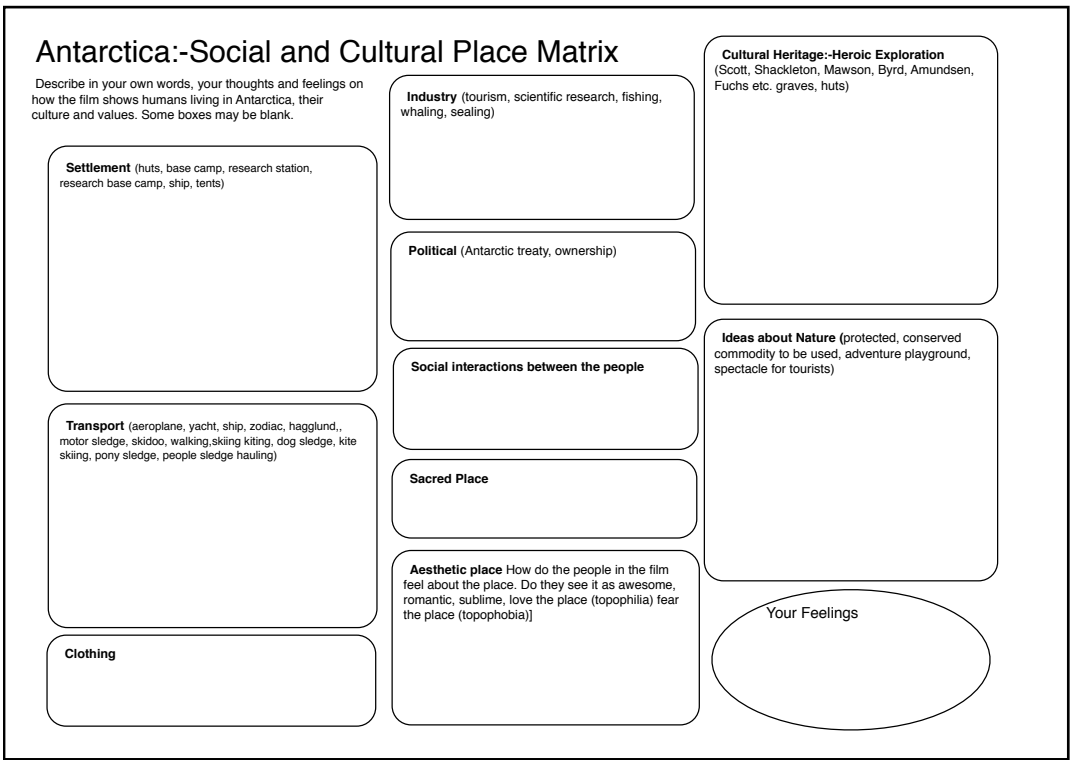
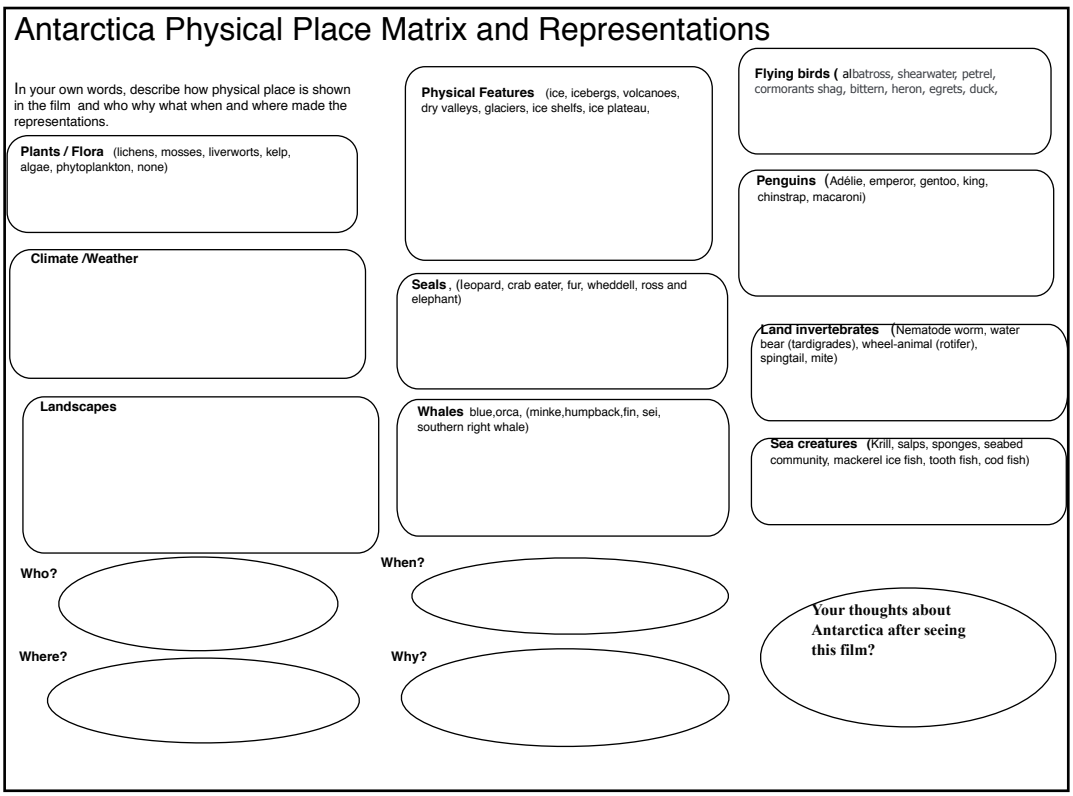
Appendix 1:-Film Place Matrix

The research tool was presented to the students in landscape format on A1 Paper





Appendix 2:-Representations Framework